A STUDY ON PHYSICAL ACTIVITY LEVEL, SEDENTARY BEHAVIOR AND ITS ASSOCIATED DETERMINANTS AMONG SPORT SCIENCE STUDENTS IN COLLEGES OF OROMIA STATE, ETHIOPIA

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CHAPTER ONE

INTRODUCTION

Physical activity is essential for developing and maintaining one's health and well-being. It is critical for a child's formation of a healthy personality, which is dependent on the opportunities for a child's mental, physical, social, and spiritual development. Evidence reveals that physical activity has been shown to improve long-term physical health (Conroy et al, 2005) as well as short-term psychological health by increasing positive affect and mental wellness (Biddle, 2000). Regular participation in physical activity will lay the foundation for a healthy and active life. Physical activity has been praised for its health and enjoyment benefits throughout a person's life. It was enjoyable and entertaining. Physical activity also gave a youthful enthusiasm as well as care for the elderly or aged. Physical activity and movement have existed since the beginning of time or human existence. It took on a variety of functions, ranging from a struggle for survival to a struggle for excellence.

A sport is an activity in our lives in which we pursue various movements through a comprehensive examination of neuromuscular coordination. In today's world, we can observe that everyone is involved in sports, whether directly or indirectly. Over the years, society as a whole has acknowledged the importance of being fit and healthy by participating in organized physical activity programs. Scientific research shows that unless a person participates in a structured, intensive physical activity program, he will not get the true benefits.

The terms 'exercise', 'physical activity, and 'physical fitness' are interrelated and often used interchangeably, both professionally and in common language but not the same. Different concepts are described by the term exercise. Exercise is a subcategory of physical activity which is planned, structured and repetitive bodily movement with the goal of improving or maintaining health, physical performance, or fitness. It can generally be classified into aerobic exercise and anaerobic exercise. Aerobic exercise refers to the use of oxygen to keep large muscle groups functioning at a speed that can be sustained for at least 20 minutes. It requires a lot of large groups of muscles in the body, resulting in increased demands on cardiovascular and respiratory systems to provide oxygen to the working muscles. It involves walking, jogging, and swimming, which is the method suggested to reduce the risk of heart disease and improve endurance. Anaerobic exercise involves

hard work, for example during weight training with a limited number of muscles. Anaerobic activity is sustained only in short periods, and the supply of oxygen is inadequate for aerobic metabolism, leading to significant oxygen debt and anaerobic metabolism within these muscles. Sprinting is another common anaerobic task, where the exercise is high in intensity but short in duration, contributing to significant oxygen debt.

Physical activity is essential for almost everyone's physical, mental, and social well-being. It lowers the risk of chronic disease, improves the quality of life and well-being, and improves cognitive performance (Verret, et al., 2012). Physical activity reduces illness rates and promotes a healthier lifestyle since prevention is preferable to treatment. Physical activity enhances sleep quality when it is done on a regular basis. An individual who is physically fit is easier to sleep and feel active throughout the day and reduces insomnia. Becoming physically active will help a person remain independent throughout his or her age and continue to do pleasurable things. For this reason, health experts recommend that older adults should engage in daily physical activity to maintain their health. Moreover, as people get older, regular moderate or intense physical activity participation reduces the risk of getting various diseases and disabilities, as well as cardiovascular disease mortality. Exercising is in some cases an effective treatment for many chronic conditions. For example, studies show that regular exercise benefits people with arthritis, heart disease, or diabetes, high blood pressure, problems with balance, etc. Daily physical activity involvement helps an individual to develop and maintain healthy bone and muscle, minimizes obesity, reduces stress and anxiety and promotes well-being, achieves musculoskeletal fitness and optimal levels of body fat, prevents silent diseases involving heart disease, cancer, diabetes mellitus, osteoporosis and other chronic disorders and health problems. Lack of regular physical activity participation resulted in rise of obesity and other diseases like cardiovascular problems, cancer, hypertension, obesity, osteoporosis, and depression. Regular physical activity involvement, according to research, can help to reduce these risks by building and maintaining strong bones and muscles, reducing obesity, reducing stress and anxiety, treating depression symptoms, and promoting well-being and healthy lives (El-Gylany, 2011). Higher levels of physical activity have been linked to a lower risk of all-cause mortality and a lower risk of cardiovascular disease, cancer, diabetes, hypertension, obesity, osteoporosis, and depression. Due to this reason, the requirement for daily physical activity is unquestionably one of the most crucial prerequisites for human survival today.

Physical fitness is solely concerned with a man's ability to fulfill the demands of his environment, as well as his ability to perform physical activity and daily tasks at a high level. It is also considered as a physiological state of well-being that offers the base for daily duties, a measure of protection against chronic disease, and a foundation for sports or physical activity engagement. Physical activity is then seen as a health-related behavior that can influence physical fitness development.

Sedentary activity is any activity that maintains a degree of energy consumption near to that when one is resting; sedentary behaviors involving screen-based media usage typically apply to recreational activities such as watching television, playing video or computer games, or using a phone. The impact of sedentary lives and apparent diminishing levels of physical exercise on human health has recently become a source of significant concern due to population increases in chronic disease (Biddle, 1998). Evidence discloses that throughout screen-based media periods, the decreased energy consumption can lead to a bad energy balance (i.e., less energy expenditure compared to energy intake) and has been associated with health issues linked to obesity (Iannotti et al., 2009). A 'sedentary lifestyle' has emerged as a result of recent trends such as an increase in physical inactivity during leisure time and a decline in vocational activity. The deterioration in physical activity and escalation in sedentary behavior was observed during the transition of adolescents to young adulthood, with the steepest drop occurring at the time of college entry, indicating that one-third of active high school students were insufficiently active during the transition to college life. Typically the students' transition from high school to college-level is followed by changes in unhealthy habits including decreasing physical activity and increasing sedentary behavior. According to studies, a higher proportion of students shifting from high school to college are inactive, with roughly out of three students' one student who was previously active becoming inactive during the shift (Mohammed, et al., 2014). There is also increasing evidence that excessive involvement in sedentary activities, such as watching television, using computers and sitting for study purposes, is associated with an increased risk of obesity and physical inactivity behavior (Deliens, et al., 2015). Despite the fact that physical inactivity is reported in both males and females, females have a significantly higher level of physical inactivity than males. According to a study, gender has significant physical activity correlations, with males engaging in greater physical activity than females (Salamuddin and Harun, 2013). Females and males participate in physical activity for various reasons, according to research on gender differences. Male students

were motivated to participate in physical activity by internal incentives such as strength, competitiveness, and difficulties, whereas female students were driven by external factors such as weight control and attractiveness (Egli, et al., 2011).

Undergraduate students of sport science are a group of young adults who are supposed to have good knowledge of physical activity and related health benefits. Graduate students in sport science may be regarded as significant proponents of physical activity and exercise. College sport science students remain a targeted population for more physical activity intervention. They are supposed to promote physical activity and exercise in one's life to enhance overall health, performance and well-being. There are currently no reported evidence about the levels of physical activity among sport science young adults. It is important to identify if there are any differences between the sport science students knowledge and personal experience, particularly with regard to their motivations and barriers to physical activity engagement. Due to this fact, there is a need to better recognize sport science university student physical activity levels in order to successfully encourage physical activity, as they represent a special young adult community learning to assess individually for the primary time in their lives and at the same time trying to obtain a bachelor degree in sport science. Therefore, the purpose of this study was to investigate the level of physical activity, patterns of sedentary behavior, and its related barriers to involvement in physical activity and sports among undergraduate college-level sports science professional students.

Statement of the Problem

Daily physical activity involvement helps an individual to develop and maintain healthy bone and muscle, minimizes obesity, reduces stress and anxiety and promotes well-being, achieves musculoskeletal fitness and optimal levels of body fat, prevents silent diseases involving heart disease , cancer, diabetes mellitus, osteoporosis and other chronic disorders and health problems. Despite the evidence of these numerous benefits, sedentary lifestyles have become much more prevalent as a result of broad technological advancements, shifting family obligations, and longer working hours. Such technological changes promote physical inactivity, leading teenagers to spend more time in sedentary activities such as watching TV, sitting on the couch, using Facebook, and playing games at the internet cafe. In response to this challenge, the researcher encouraged studying the level of physical activity among Sport Science students at the college level. More precisely, this study focused on the task of identifying the practical conditions associated with the

participation of students in physical activity at the college level and is correctly entitled, “A study on physical activity level, sedentary behavior and its associated determinants among sport science students in colleges of Oromia state, Ethiopia”.

General Objective

The major purpose of the study is to investigate the physical activity level, sedentary behavior and its associated determinants among sport science students in colleges of Oromia State, Ethiopia.

Specific Objectives

This study has the following specific objectives:

- To identify the possible psychosocial and environmental factors that influence physical activity participation of sport science college students.
- To identify the physical activity level of sport science students.
- To analyze the sport science students level of physical activity in terms of age, BMI, and academic performance.
- To examine the patterns of physical activity and sedentary behaviors among college sport science students
- To assess the availability of physical activity and sports facilities in the colleges.
- To analyze the opinion of the sport science students with regard to the encouragement and motivation given to them towards participation in sports and physical activities.
- To collect ideas and recommendations for increasing physical activity and reducing inactivity in a representative sample of university sport science students.

Delimitations of the Study

This study has the following delimitations:

- The present study is delimited to college sport science students of Oromia State.
- The study is delimited to college students pursuing their under-graduation course.
- The study is delimited to only sport science students in the age group of 18-30 years.
- The study is delimited to six districts of Oromia state (Nekemte, Jima, Harar, Guji, Bale and Ilubabor).
- The study is delimited to study variables, such as BMI, gender, age, attitude, academic performance and physical activity level.

Limitations of the Study

This study has several limitations.

- The feasible limits of this study were less sample size, probability of recall biases/over reporting of physical activity due to personal prejudices that directed to overestimation of physical activity levels. Moreover, the sample was restricted to second and third year students who had college experience in specializing sport science, while students from other first year of study did not have college experience within sport science program and they also did not participate in the study.
- The moods and emotional status of the study subjects may have influenced their responses to various items administered to them. This in turn might have influenced the data gathered.
- This research did not explore the different viewpoints of the study participants' parents concerning physical activity.

Hypothesis of the Study

The researcher hypothesized that:

- There is a significant difference in mean agreement scores of weekly frequency of vigorous physical activity between the male and female sport science college students.
- There is a significant difference in mean agreement score of weekly frequency of moderate physical activity between the male and female sport science college students.
- There is a significant difference in mean agreement score weekly frequency of walking between the male and female sport science college students.
- There is a significant difference in mean agreement score of weekly duration of vigorous physical activity between the male and female sport science college students.
- There is a significant difference in mean agreement score of weekly duration of moderate physical activity between the male and female sport science college students.
- There is a significant difference in mean agreement score of weekly duration of walking between the male and female sport science college students.
- There is a significant difference in mean agreement scores of weekly duration of sitting between the male and female sport science college students.

- There is a significant difference in mean agreement score of total physical activity MET of vigorous between the male and female sport science college students
- There is a significant difference in mean agreement score of total physical activity MET of moderate between the male and female sport science college students
- There is a significant difference in mean agreement scores of total physical activity MET of walking between the male and female sport science college students.

Significance of the Study

This research has the following significance

- The findings of this study would enable university sport science instructors to design courses to maximize the students time spent in physical activity.
- The findings of this study will provide the grounds for key findings as well as support consideration for future research and practice.
- The presence of infrastructure and other facilities gives us an idea of how physical activity is developing at that university. Sport facilities are essential for participation in physical activity and exercise, as well as good performance. An overall observation of the infrastructure and facilities offered in the university could definitely help to throw light on the strong and weak points existing in the standard of physical activity level among sport science university students.
- This study should pinpoint the actual situation in the university system in terms of promoting the involvement of students in physical activity.
- The findings of this study could enable college students to improve their current physical activity participation to enhance overall health, performance and well-being in their life.
- The study results can overlay the way to understand the value of participation in physical activity leading to the provision of facilities to students.
- In the appropriate area, the present study would be a useful addition to the literature and may inspire and springboard future researchers to conduct similar studies on the problem with a different variables.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

A literature review is used by academics, scholars, and practitioners to organize, evaluate, and synthesize the current body of completed and documented work. It's a crucial step toward gaining a basic understanding or a complete picture of what was done in relation to the topic under investigation. In any discipline, the literature serves as the foundation upon which all feature research is built. An in-depth and clear overall field viewpoint is provided by such an evaluation. Its ultimate goal is to bring the researcher up to date on current literature on a topic and provide as the foundation for a secondary goal, such as field research. A logical flow of ideas, current and relevant sources with clear and exact reference style, suitable terminology, and an objective and extensive appraisal of earlier work on the subject differentiate a well-structured literature review. A review of literature usually follows a section on the research topic and outcomes, and it is generally focused with academic-oriented material, such as a dissertation.

Due to a shortage of literature for the investigation, the current study was confined to the studies available to the investigator. The scholar conducted a thorough and academic examination of the relevant literature, and this chapter gives a summary of the research on the subject. All of the associated literature gathered by the researcher was abstracted in this chapter to offer the essential background information for evaluating the study's importance. The work of various authors on the physical activity levels of university students and other related concepts are reviewed in order to conduct an investigative study on physical activity level, sedentary behaviors, and their associated determinants among sport science college students in Ethiopia. The researcher thoroughly reviewed on the following topics:

Physical Activity and Health

A study by Carnethon, Gulati, and Greenland (2005) intended to determine the health advantages of physical activity. It was discovered that: (1) the larger the advantage of physical activity, the greater the benefit of wellness. (2) In high-risk teenagers, even small quantities of physical activity may have health advantages (e.g., obese). (3) For considerable health advantages, physical activity should be of at least moderate intensity, with high intensity activities providing considerably larger benefits. (4) Physical activity must be done on a regular basis throughout one's life in order to get

the full health benefits of a balanced lifestyle. (5) Physical activity can also help to minimize the risks of cardiovascular disease. In a study conducted by Meen (2000), it was discovered that everyday physical activity had a favorable effect on ligaments and cartilage, as well as having a positive influence on children's and youth's mental health. In a comprehensive review, Larun et al (2006) found that physically active youngsters have higher self-esteem and less depression symptoms than their less active counterparts. The Surgeon General's report on physical activity and health (USDHHS, 2009) was a particularly important document since it warned about the dangers of sedentary behavior and established physical activity as a vital component of public health and wellbeing. For the adult population, daily moderate physical activity adds to a variety of health benefits. It helps with cardiorespiratory endurance, flexibility, muscular strength and endurance, depression and anxiety, and bone mass density, among other things. Individuals who engage in moderate physical activity on a regular basis have a lower mortality risk than those who are sedentary. People who are physically active appear to be healthier than those who are not. The greatest health advantages occur when persons transition from an inactive to a moderately active lifestyle. Participation in daily physical activity is an essential component of maintaining a healthy lifestyle. According to the Surgeon General's report on physical exercise and wellness, the benefits of daily physical activity for children and adolescents include growing and maintaining strong bones, muscles, and joints, reducing symptoms of depression and anxiety, and fostering psychological stability. Physical activity also aids in weight management, fat loss, lean muscle development, and scholastic achievement. Researchers and educators feel that while physical activity stimulates the brain, movement is essential for learning. Physical education can thus have a favorable impact on students' academic learning and physical activity habits by incorporating physical exercise. Many studies show that when the brain is activated during physical activity (Hillman, Castelli, & Buck, 2005; Hollmann & Struder, 1996; Ploughman, 2008; Shephard, 1997; Trudeau & Shephard, 2010; Sibley & Etnier, 2003), original brain cells are energized and new ones are activated. There is an increase in cerebral blood flow, an increase in alertness, a shift in hormone outputs, and an increase in nutritional intake in particular.

In a systematic review of evidence-based physical exercise for school-age youth, Strong et al., (2005) highlighted the healthful advantages of routine physical activity in children and adolescents, as follows: (1) Adiposity - Reduce overweight children and adolescents' total body

and adiposity. (2) Cardiovascular safety - Increase metabolic syndrome elements (e.g. adiposity, glucose) in non-obese adolescents, decrease triglyceride and insulin rates in children overweight, raise HDLC (high density lipoprotein cholesterol) and triglyceride in schoolchildren, decrease blood pressure in young people with moderate important hypertension, gain cardiovascular flexibility and boost aerobic fitness. (3) Musculoskeletal health & fitness - boost muscle strength and endurance, increase bone mineral content and density. (4) Mental wellbeing - decreases symptoms of anxiety and depression, seems to have a positive impact on the sense of global, physical, social and academic self-concept. (5) Academic performance - improving academic and intellectual performance, improving concentration, memory and behavior in the classroom.

Assessment Methods of Physical Activity

Physical activity is regarded a dynamic multi-dimensional action to be measured, according to Van Sluijs, et al., (2007). No single approach is capable of capturing all domains, and it is difficult to determine because people are participating in different ways and surroundings. As a result, environmental, societal, and personal factors make it difficult to establish whether or not you are getting enough physical activity. Loprinzi and Cardinal (2011) discovered that researchers should carefully consider "participant age, burden on respondents, type of physical activity data required, time frame, delivery mode, measurement error, and cost (instrument and administration)" when selecting how to evaluate amount of physical activity. A variety of evaluations can be used to estimate the degree of physical activity in kids and teenagers. Measurements of physical activity can be divided into three categories. These are: Primary measurements includes direct observation, doubly labeled water, and indirect calorimeter; secondary measurements include heart rate monitoring, pedometers, and accelerometers; and subjective/self-reported measurements include questionnaires, interviews, and diaries. Nonetheless, because the current PhD thesis focuses on a population-based analysis, researcher only describes the subjective physical activity assessments, as it is common to evaluate physical activity for a complete day during a typical week under free-living settings. Self-report surveys or diaries, proxy/parental reporting, metabolic equivalence, and direct observation are all typical methods of gathering data to capture sedentary behavior.

Self-report - Self-reporting physical activity measures are the most extensively used techniques for evaluating or measuring physical activity in research, according to Loprinzi & Cardinal (2011),

due to their low cost and ease of collecting data from large groups of people in a short period of time. Self-reporting approaches such as self-reports (questionnaires), interview-administered reminders, and diaries/logs are commonly used to determine children and adolescents' physical activity patterns. Self-reporting measures are frequently employed because they are inexpensive, simple to execute (for example, little participant pressure, universal recognition), and aim to provide information about the type and context of physical activity. Self-reporting methods, on the other hand, have several limitations. For starters, people, especially children and teenagers, may misunderstand or misinterpret the questions and answers. Second, study participants may have difficulty recalling bias in physical activity duration or intensity. Children are said to have difficulty recalling their physical activity behavior because they engage in varied degrees of physical exercise at irregular intervals. Sallis et al. (1993) investigated the reliability of different self-report measures and discovered that a delay in recall was an important factor determining reliability. Memory abilities, on the other hand, have not been linked to the accuracy of physical activity recall. Memory abilities have not been found to influence the recall reliability of physical activities. Self-reporting methods with a shorter delay between exercise and memory of 3-day physical activity, as opposed to 7-day physical activity, may be more reliable in young children.

Physical Activity Recommendations

Physical activity should be done on a regular basis to maintain overall health and weight management. Furthermore, frequent physical activity is linked to improved mental health, lower stress levels, and increased social engagement. For health advantages, the ACSM recommends that individuals get 150 minutes of physical activity per week, comprising aerobic physical activity of moderate intensity for at least 30 minutes five days a week or vigorous intensity physical activity for 20 minutes three days a week. Adults who want to enhance their fitness or minimize their risk of inactivity-related disorders (such as diabetes or coronary heart disease) should go above and beyond the recommendations above. Only 37 percent of university students engaged in the prescribed vigorous physical exercise three or more times per week, according to Lowry et al. (2000), and only one out of every three students received physical activity training from their university. Finally, the researchers suggested that colleges should take initiatives to increase student understanding of effective weight loss procedures as well as the need of a healthy diet and physical activity.

According to the findings of the National College Health Evaluation (2006) study of 117 higher education institutions, 47.7% of males and 56.4 percent of females refused to follow the existing standard of moderate physical exercise for at least 30 minutes five days a week (Nelson et al., 2007). University physical activity programs can help students enhance their levels of physical activity and understanding of healthy behaviors by extending physical education experiences from kindergarten to high school (K-12) and promoting physical activity experiences (National Association for Sport and Physical Education [NASPE], 2007). A good physical activity program at a college or university should, according to (NASPE, 2007), nowadays the Society of Health and Physical Educators [SHAPE] America, have education as its primary mission, have a health-related focus on physical activity/skill acquisition, offer different courses of physical activity that represent individual interests, address social needs, and promote healthy and sustained engagement in physical activity enhancing wellbeing. In a meta-analysis of college students' physical activity behaviors, Keating et al (2011) discovered that many universities lack sports facilities that allow students to participate in physical activity, and little is known about how much physical exercise students get in university physical activity courses. In the year 2000, Norway's National Nutrition and Physical Activity Council issued a proposal for physical activity aimed at Norwegian children and youth. They recommended that both children and adolescents engage in moderate-intensity physical activity for at least 60 minutes per day (Norwegian Directorate of Health, 2000). Physical activity will include a variety of activities aimed at improving muscle strength, endurance, flexibility, coordination/balance, response time, and speed in order for the children to master a variety of fundamental skills. The total amount of time that should be spent being active could be broken into shorter activity periods, with both moderate and vigorous-intensity exercises included.

CHAPTER THREE

RESEARCH METHODOLOGY

In this section, the methods and procedures used to conduct a meaningful descriptive study on physical activity level, sedentary behavior and its associated determinants among sport science students in colleges of Oromia state, Ethiopia was explicitly presented. To achieve the objectives of the current study, selection of subjects, variables and design, methods for collecting data and appropriate statistical techniques for analyzing the collected data were needed. Included in this chapter: descriptions of study subjects, description of sample size for the study, description of selection of variables, descriptions of research design, descriptions of methods of data collection, descriptions of sources of data, descriptions of procedures of data collection and analysis of data.

Subjects/Population for the Study

Male and female sport science students pursuing their Bachelor of Science degree under the jurisdiction of Government College were the participants of this study. Participants in the study recruited from six Oromia state colleges that offer a three-year basic graduation degree. All study participants who are physically impaired or have contraindications to physical activity are excluded from the study.

Sample Size for the Study

The sample size for this study was 266 subjects, consisting of 133 male and 133 female students from six government colleges in Oromia state, Ethiopia, namely Wollega, Bule Hora, Haromaya, Jimma, Mettu, and Meda Wolabu, who were chosen for the study using convenience sampling based on inclusion and exclusion criteria.

Selection of Study Variables

To establish the suitable variables and test items administered for the current study, the researcher investigated significant as well as related scientific literature, books, journals, periodicals, and academic papers, as well as thorough discussion with experts in the field of study. Following a thorough review of the literature, the researcher settled on the variables for the study. The independent variable: anthropometric measurements (height, weight and body mass index (BMI),

socio-demographic parameters (age and gender), academic accomplishment, student's attitude towards physical activity and the dependent variable: physical activity level (low, moderate, and vigorous) were chosen as variables, taking into account the time needed to collect data and maintain the study unitary. The right questionnaires to examine these variables were carefully chosen during the variable selection process.

Selection of Subjects

A convenience sampling technique was used to select a total of 266 participants for the study, comprising 133 male and 133 female students meeting the inclusion and exclusion criteria. Male and female students between the ages of 18 and 30 were included in the study, both physically active and inactive. Participants who are physically challenged or have contraindications to physical activity were excluded by the researcher.

Study Design

The study design for this study was an exploratory survey that was conducted in two phases. The first phase consisted of a quantitative study that assessed the study participants' levels of physical activity and sedentary behavior. The second phase consisted of a qualitative study aimed at identifying perceived barriers to physical activity engagement among the same demographic groups of young adults. In phase one of the quantitative investigation, the researcher used the International Physical Activity Questionnaire short form to determine the level of physical activity of the participants. In phase two of the qualitative investigation, the researcher used Focus Group Discussions within the same group to identify perceived barriers to physical activity participation.

Source of Data Collection

The data used in this investigation came from a primary source. The short form of IPAQ was used to assess physical activity levels, in which respondents were asked to describe the number of days and duration of walking, moderate, and vigorous activity. Respondents were asked to participate in a focus group discussion to explore perceived barriers to physical activity participation and encouragement given to them to increase physical activity and reduce sedentary behavior.

Methods of Data Collection and Procedure

Questionnaire - International Physical Activity Questionnaire (IPAQ)

For this study, validated socio-demographic information questionnaires and the IPAQ-short form were used to collect data on the level of physical activity of sport science students pursuing their bachelor's degree at the chosen college (Booth et al., 2003). The sport science chairmen of the selected colleges were contacted to explain the study's goal, methodology, and to schedule meetings with all of the study's participants. Six meetings were organized, each on a different day, with the chairmen of the sport science department at their respective offices. The chairman-in-charge briefed the students about the purpose of the meeting on a typical day of meetings with students. The researcher and research assistants then took control of the meetings to further explain the study's objective, advantages, and risks and subsequently obtain written informed consent from potential participants. After adequately answering their queries or reservations about their participation in the study, self-administered International Physical Activity questionnaires were delivered to consenting adult sport science professional students. The questionnaires are pilot tested with a small number of respondents to determine how effectively they work, whether there are any areas of confusion, and whether they can be interpreted more smoothly. The questionnaire was evaluated and administered face - to - face between a total number of 266 second and third year college sports science students pursuing their Bachelor of Science degree in the 2019/2020. After the first questionnaire test the students were told they would be given another questionnaire after ten days and it was not disclosed they would take the same questionnaire, this is done to reduce bias and recall effects among the students. Then, the international physical activity questionnaires were prepared along with cover letter. The cover letter requested that students participate in the study of sport science and submit the completed questionnaire within a given date. It guaranteed confidentiality. Finally, questionnaires prepared were distributed to sports science students with the assistance of a volunteer classroom student.

Explanations of International Physical Activity Questionnaire (IPAQ) – Short Form

The short form of the International Physical Activity Questionnaire (IPAQ) was used to identify the individuals' level of physical activity. It was used to collect data on the frequency and duration of physical activity (intense, moderate, and walking) performed by respondents in the preceding

week (at work, at home, in their spare time, during transportation etc.). Physical activity that causes rapid breathing and heartbeat harder than normal was described as intense physical activity (i. e. lifting heavy objects, digging, calisthenics, fast running, fast bike riding). Physical activity that causes slightly quicker breathing and heartbeat was classed as moderate (i.e. carrying lighter objects, riding a bike at a regular pace, playing volleyball, very fast walking). Physical activity that connected with transportation, shopping and strolling/leisure was classed as walking.

Metabolic Equivalents Tasks (METs) are given for the amount of physical activity depending on the level to score the data obtained from these questionnaires. According to (Craig et al., 2003), the values assigned to the activity are metabolic equivalents tasks (METs) to measure the amount of energy consumed in the course of the activity. Each type of physical activity was measured in metabolic equivalent (MET) minutes per week (intense: 8 MET, moderate: 4 MET, walking: 3.3 MET) by multiplying the metabolic equivalent assigned to each exercise (intense: 8 MET, moderate: 4 MET, walking: 3.3 MET) by the number of days per week and the average duration in minutes per day. After the questionnaire has been completed, it is then possible to collect the findings and use physical activity standards from the WHO to rank participants from physically inactive to active. Levels of physical activity were measured using MET minutes per week. The metabolic equivalent (MET) values for vigorous and moderate activity and walking were multiplied by the daily minutes the activity was done and the number of days a week the activity was replicated. Finally, total values for each participant were calculated and used to determine participant activity levels (high, moderate or low).

IPAQ Scoring System

The short version of the IPAQ has reasonable test-retest reliability and validity for sitting, moderate and vigorous activity. It asks about three different activities performed in four domains. The different forms of activity that were measured are walking, moderate and vigorous intensity exercises. The MET (metabolic equivalent task) is a unit of measurement for the level or intensity of physical exercise mentioned in the questionnaire. One MET is equivalent to a caloric consumption of 1 kcal/kg/h. In other words, one MET is equivalent to a resting energy expenditure assuming a 3.5 ml-min / kg oxygen intake. Walking given the value 3.3 METs, moderate physical activity given the value 4.0 METs and vigorous physical activity given the value 8.0 METs. Based

on the derived intensity level, a continuous score of physical activity levels (low, moderate, high) in the previous 7 days for each participant was calculated using the formula indicated below:

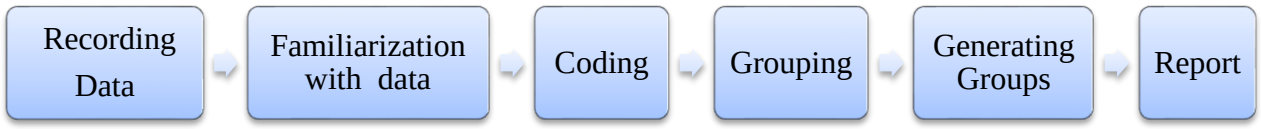
MET-min/week = MET level × minutes of activity per day × number of days per week.

The frequency, intensity, and duration of physical activities are measured in MET-minutes per week (MET-min/week). These continuous scores were then classified into three categories based on the World Health Organization's (WHO) physical activity classification system: high, moderate, and low. Three levels of physical activity were identified to classify the study participants according to the IPAQ guidelines:

1. Respondents who were classified as High/Vigorous level of physical activity had to meet one of the following requirements:
    - **a.** Vigorous-intensity activity done for 3 or more days attaining minimum total/altogether physical activity of at least 1,500 MET-minutes/week or
    - **b.** Seven days or more days of mixed physical activity (walking, moderate and vigorous intensity activity), resulting in minimum or exceeding the value of 3,000 MET min/week.
2. Respondents categorized as Moderate level of physical activity had to meet either one of the following criteria:
    - **a.** Three days or more of vigorous-intensity activity of at least 20 minutes per day or
    - **b.** Five days or more of moderate-intensity activities or 30 minutes of daily walking
    - **c.** Five or more days of mixed physical activity (walking, moderate, or vigorous-intensity activities), resulting in a minimum or exceeding total physical activity value of 600 MET-minutes/week.
3. Respondents who were not physically active or who did not meet any of the above criteria (high or moderate physical activity) were classified as inactive or low physical activity category.

Analysis of the Data

The data collected through IPAQ short form was analyzed using descriptive statistics. Descriptive statistics can be used to analyze and represent the collected data in the form of means, standard deviation, frequency and percentages. The Independent Samples T-test was used to compare the variable averages for physical activity characteristics between genders, with a significance level of 5%. The SPSS 20.0 for Windows statistical analysis programme was used. For the data gathered through focus group discussions, qualitative content analysis was performed utilizing the thematic inductive method. The steps used during the qualitative data analysis are given below.



Procedure of Qualitative Data Analysis

CHAPTER FOUR

ANALYSIS AND INTERPRETATIONS OF DATA

This chapter deals with the qualitative content and the descriptive statistical analysis of primary data collected with regard to "physical activity level, sedentary behavior and its associated determinants among sport science students in colleges of Oromia State, Ethiopia."

Characteristics of Colleges and the Study Subjects

Table 1. Status of the colleges selected for the study- District wise

District	Number of the colleges selected					
	Govt.		Private		Total	
	f	%	f	%	F	%
Nekemte	1	100	-	-	1	100
Jima	1	100	-	-	1	100
Harar	1	100	-	-	1	100
Guji	1	100	-	-	1	100
Bale	1	100	-	-	1	100
Ilubabor	1	100	-	-	1	100
Total	6	100	-	-	6	100

Table 2. Study Population

Colleges	Total number of students					
	Male		Female		Total	
	F	%	F	%	f	%
Wollega	52	46.4	60	53.6	112	100
Jima	58	51.8	54	48.2	112	100
Haromaya	50	47.6	55	52.4	105	100
Bule Hora	59	53.6	51	46.4	110	100
Meda Wolabu	53	49.5	54	50.5	107	100
Metu	52	55.3	42	44.7	94	100
Total	324	50.6	316	49.4	640	100

Table 3. Sample size of the respondents selected for the study

Colleges	Number of students under study					
	Male		Female		Total	
	F	%	F	%	f	%
Wollega	18	40	27	60	45	100
Jima	26	56.5	20	43.5	46	100
Haromaya	20	48.8	21	51.2	41	100
Bule Hora	22	50.0	22	50.0	44	100
Meda Wolabu	22	47.8	24	52.2	46	100
Metu	24	54.5	20	45.5	44	100
Total	133	50.0	133	50.0	266	100

Looking at the demographics of the respondents, Table 3 shows that a total of 266 students were chosen for the study, with 50 percent (133 of 266) male students from Government Colleges and 50 percent female students from the same colleges. The number of participants who responded to the study questionnaire was nearly equal across all of the colleges.

Family Encouragement of Students Physical Activity (PA) Participation

Table 4. Percentage of respondents with family encouragement towards physical activity

	Respondents					
	Male		Female		Total	
PA encouragement in family	f	%	f	%	f	%
PA not permitted at all	8	6.0	126	94.7	134	50.4
PA permitted in family	118	88.7	4	3.0	122	45.9
Not comment	7	5.3	3	2.3	10	3.7
Total	133	100	133	100	266	100

The data in Table 4 above shows that family support complements the opportunities that a student receives from outside agencies. The pressure on a student to participate in any sphere of endeavor

is greatly reduced if the family, particularly the parents, agrees making it much easier for the student to succeed in the chosen field. As a result, Table 4 shows that half of the respondents (50.4 percent) said their family does not encourage or permit them to participate in physical activities. Unfortunately, this is a pitiful scenario in terms of encouraging sport science experts to engage in physical activity. Another 3.7 percent of respondents appear to be unable to make an informed decision about whether or not their parents enable them to engage in physical activity. As can be seen from the frequency distribution in table 4, only approximately half of the respondents (45.9 percent) are allowed to participate in physical activities by their families.

Opinion of the Students about Sport Science Directors

Table 5. Colleges with number of sport science directors

	Number of sport science directors		
Colleges	One	Two	Three
Wollega	1	-	-
Jima	1	-	-
Haromaya	1	-	-
Bule Hora	1	-	-
Meda Wolabu	1	-	-
Metu	1	-	-

Table 5 revealed that all government colleges have only one sport science director when asked about the number of sport science directors employed in the college. This table shows that the number of sport science (physical education) directors in all colleges were insufficient. There is only one sport science director in every college (100%), indicating that the sport science director may be present in the college solely to comply with college regulations or to perform only the mandatory duties imposed by the college rather than to meet the students' physical activity, sports, and fitness needs.

Table 6. Satisfaction with the number of sport science directors

	Respondents					
	Male		Female		Total	
	f	%	f	%	f	%
Yes	2	1.5	6	4.5	8	3.0
No	116	87.2	120	90.2	236	88.7
No comment	15	11.3	7	5.3	22	8.3
Total	133	100	133	100	266	100

In addition, Table 6 above shows that when asked about the appropriateness of sport science directors in their respective schools, about 2 percent of male respondents and 5 percent of female respondents appear to be content with the current number of sport science directors in their colleges. Overall, only 3 percent of respondents are satisfied with the number of sport science directors in colleges, with the remaining 89 percent dissatisfied. Approximately 8 percent appear to be unaware of the need for sport science directors and have remained silent. From the above data one can assume that since all colleges have only one sport science director, the students' needs in physical activity and sports are met and thus a small number of them are satisfied. The majority of the students are dissatisfied probably because of the fact that the one sport science director, who is employed more from the necessity of satisfying the mandatory requirement of a sport science director than to satisfy the physical activity, sports and fitness needs of the students, is not able to perform his/her duties to the students' satisfaction. Because all colleges have only one sport science director, it is reasonable to presume that the students' physical activity and sports needs are met, and that only a small percentage of them are satisfied.

Opinion of the Students about Physical Activity and Sports Facilities

Table 7. Percentage of respondents on availability of physical activity measuring instruments

Availability of physical activity measuring instruments	f	Percent
Yes	14	5.3
No	252	94.7
Total	266	100

In response to the question about the availability of physical activity measuring instruments within sport science departments, the vast majority (95 percent) of them states negatively that there are no physical activity measuring instruments within their department that motivate them to engage in physical activity and aid in determining their fitness level. Surprisingly, just 5 percent said the physical activity monitoring instrument is available in their department.

Opinion of the Students about Physical Activities

Table 8. Do you think that regular practice sessions of physical activities for sport science students are compulsory or optional?

Practice sessions of physical activities	Respondents					
	Male		Female		Total	
	f	%	f	%	f	%
Compulsory	53	39.9	37	27.8	90	33.8
Optional	70	52.6	81	60.9	151	56.8
No comment	10	7.5	15	11.3	25	9.4
Total	133	50.0	133	50.0	266	100

N = 266

When asked whether regular practice sessions of physical activities are mandatory or optional for sport science students, Table 8 above shows that 40 percent of male respondents and 28 percent of female respondents agree that participation in regular physical activities is mandatory, especially for sport science professionals. On the other hand, 53 percent of male respondents and 61 percent of female respondents say that participation in physical activities is an optional activity for sport science students. Overall, 57 percent of students believe that regular engagement in physical activities in general, and exercises in particular, is optional for sport science professionals, while 34 percent believe it is mandatory. The remaining 9 percent are uninterested in expressing their views, leading one to believe that they are not interested in partaking in physical activities. The reality is that sport science students do not consider physical activity to be mandatory in Oromia state colleges because they are forced to enter the department against their interest or motivation. As a result, this question is asked to see if the students are interested in participating and believe that physical activity and sports are a compulsion for sport science professionals. Because only

around one-third of the students interviewed believe physical activity is mandatory, it is reasonable to presume that only those students actively participate in regular physical activity, as compared to those who participate only sometimes.

In response to the question of whether sport science students consider physical activity and sports to be a co-curricular/extracurricular activity and whether they enjoy participating in physical activities and sports, shows that 12 percent of them affirmatively state that they consider physical activity and sports to be a co-curricular/extracurricular activity and that they do enjoy participating in physical activities and sports. Surprisingly, the majority (88 percent) of respondents say that physical activity and sports are not currently considered co-curricular activities, and that they have failed to enjoy involvement in physical activities as sport science professionals.

When asked about their experience with physical activity and sport prior to joining sport science department, it is clear from that the vast majority (94 percent) of respondents have no prior experience with physical activity and sport, while the remaining 6 percent appear to have had exposure to physical activity and sports. From this, it is clear that individuals were recruited and accepted into sport science department despite having no prior high school physical activity and sports experience.

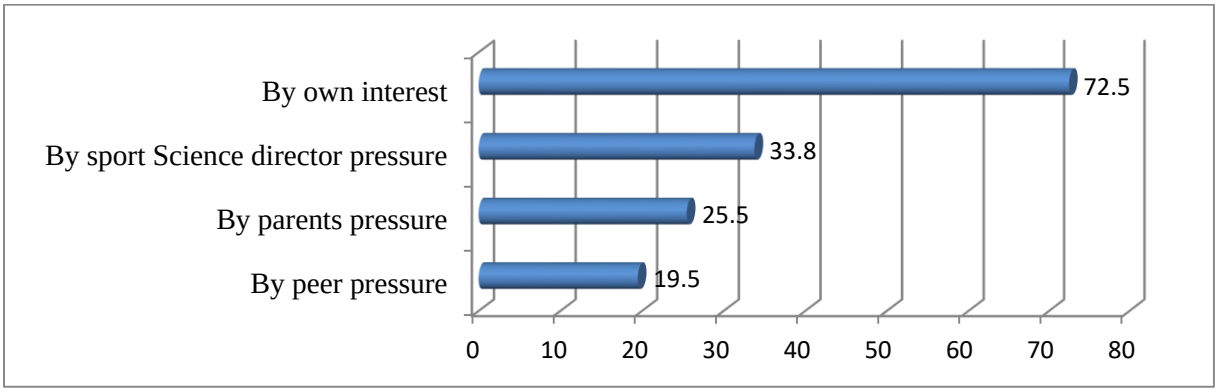


Figure 1. Reason for selection of physical activities in college

Note. N=266. Percentages are based on the total responses.

When asked why they choose the physical activities that they do at their colleges, Figure 1 above shows that 72.5 percent of respondents said they participate in physical activities and sports events at their institutions because of their own interests. Surprisingly, one-third of the respondents (33.8 percent) openly admit that they participate in physical exercises and sports events because they are

compelled to do so by the sport science director. Amazingly, one quarter (25.5 percent) of the respondents openly admit to participating in physical exercise and sporting events as a result of parental pressure to do so. However, 19.5 percent of the respondents, peer pressure drove them to participate in physical fitness and sports activities at their colleges.

As a result, it's comprehensible that more than three-quarters of the respondents in the survey are uninterested in participating in physical activities and sports during their academic careers, despite the fact that they are sport science experts.

Table 9. Rating of the students' interest to do physical activity

	Respondents					
	Male		Female		Total	
Interest to do physical activity	f	%	f	%	f	%
High	34	25.6	12	9.0	46	17.3
Medium	45	33.8	38	28.6	83	31.2
Low	54	40.6	83	62.4	137	51.5
Total	133	100	133	100	266	100

Table 9 above shows that an individual's level of interest influences his or her willingness to participate in a certain activity. Table 9 shows that 17.3 percent of respondents had a strong desire to participate in physical activity, while 31.2 percent have a moderate desire to engage in physical activity. More than half of the respondents (51.5 percent) stated that physical activity is not something they are interested in doing. Unfortunately, for sport science professionals, this is a rather depressing scenario in terms of physical activity interest. As can be seen from the frequency distribution in Table 9, more than half of the respondents (51.5 percent) had little interest in participating in physical activity. Furthermore, one-quarter (25.6 percent) of male respondents admit to having a strong desire to engage in physical activity, while one-third (33.8 percent) have a moderate desire to engage in physical activity, and the remaining 40.6 percent have a weak desire to engage in physical activity. On the other hand, among female respondents, 9.0 percent have a strong want to engage in physical exercise, 28.6 percent have a moderate desire, and the remaining 62.4 percent have a weak desire to engage in physical activity. Therefore, in comparison to female

students, male students had a higher percentage (25.6%) of interest in participating in regular physical activity than female students (9.0 percent). Female students, on the other hand, had a higher percentage (62.4%) of low interest in physical activity than male students (40.6 percent).

Table 10. Rating of the students' self- efficacy towards physical activity

	Respondents					
	Male		Female		Total	
Self- efficacy for physical activity	f	%	f	%	f	%
High	62	46.6	10	7.5	72	27.1
Medium	48	36.1	30	22.6	78	29.3
Low	23	17.3	93	69.9	116	43.6
Total	133	100	133	100	266	100

Table 10 above shows that a person's self-efficacy toward physical activity influences his or her willingness to engage in regular physical activity. Accordingly, Table 10 shows that 27.1 percent of respondents have high self-efficacy for physical exercise, 29.3 percent have medium self-efficacy, and 43.6 percent have poor self-efficacy for physical activity. As can be seen from the frequency distribution in Table 10, the majority of the respondents (43.6 percent) have low self-efficacy for physical activity.

Furthermore, nearly half of male respondents (46.6 percent) admit to having high self-efficacy for physical activity, more than a third (36.1 percent) admit to having medium self-efficacy for physical activity, and 17.3 percent admit to having low self-efficacy for physical activity. On the other hand, among female respondents, 7.5 percent have high self-efficacy to engage in physical activity, 22.6 percent have medium self-efficacy, and the other 69.9 percent have poor self-efficacy to engage in physical exercise. According to the aforementioned data, male students had a higher percentage of self-efficacy to engage in physical exercise (46.6 percent) than female students (7.5 percent). Female students, on the other hand, had a higher percentage of low self-efficacy to engage in physical activity (69.9 percent) than male students (17.3 percent).

Profile, Opinion and Functioning of Sport Science Director

Six sport science directors, who work in government higher education institutions in the selected sample districts of Oromia State, Ethiopia, have replied to the study. All of the responders are male, with no females. This suggests that males dominate the workforce of sport science directors in colleges, which may have an impact on female students' participation in physical activity and sports. The female workforce in sport science appears to be associated, similar to female engagement in physical activities and sports, as none of the respondents are female. This uneven imbalance in sport science directors must be rectified when the student population is about equal across both genders. When asked about their professional qualifications, 83.3 percent of respondents have finished post-graduation in Sport Science, which is a requirement for working as a sport science director at the college level, and 16.7 percent have earned their doctoral degree. A look at sport science directors' professional qualifications paints a picture of their commitment to pursuing further education. A professional pursuing higher education speaks volumes about his or her professionalism and desire to work harder to achieve institutional goals in his or her field of interest. Moreover, when it comes to the current nature of their jobs, all respondents (100 percent) are on a permanent payroll and none of them (0 percent) are working as sport science directors on a contract basis. This is a positive sign that sport science directors will be more committed to increasing their students' participation in physical activity and sports in their professional roles. When asked whether they seek the assistance of private coaches for fitness training their sport science professional students, all (100 percent) of them categorically state that they do not seek the assistance of external physical fitness coaches or athletes to train the students in their respective colleges, and none of them admitted that they would bring external expertise to guide or coach the students in various exercises. The point of disagreement is that, as is common in universities, sport science (physical education and sports) continues to take a backseat to academic pursuits in the current environment. As a result, regardless of the number of students present, only one sport science director is appointed. Furthermore, no external coaches or experts in physical fitness training are hired to coach the sport science students on a permanent or temporary basis. None of the universities want to attain excellence in physical activity by hiring additional physical fitness trainers. Another impediment to hiring private physical fitness trainers is a lack of financial resources dedicated to physical fitness and sports activities, which will have an impact on this problem. Physical activity and sports development will undoubtedly suffer as a result of this.

Table 11. Nature of work of the sport science directors

Nature of Sport Science duties	F	Percent
Only coaching physical activity	-	-
Both coaching physical activity and Administrative	6	100.0
Total	6	100.0

In response to the question about their work profile, 100 percent of the respondents stated that, in addition to their regular work profile of teaching sport science, they had to perform several activities relating to administration and management concerns. None of them were found to be fortunate enough to be able to focus solely on their assigned job - simply coaching physical fitness activities at the college (See Table 11).

In addition, when asked about the methods used in teaching students in sport science (see figure 2), 100 percent of them responded that both theory and practical sessions are important. Similarly, 50 percent of respondents indicated they use a feedback mechanism in which they talk to students and collect their opinions on how they teach sport science. Furthermore, 33.3 percent of respondents stated that they employ more interactive media – such as audio-video based lessons – to educate students sport science. Another 16.7 percent of respondents explicitly indicated that they place a greater focus on practical rather than theoretical parts of physical activity, while only 66.7 percent stated that they primarily teach theoretical aspects of physical activity.

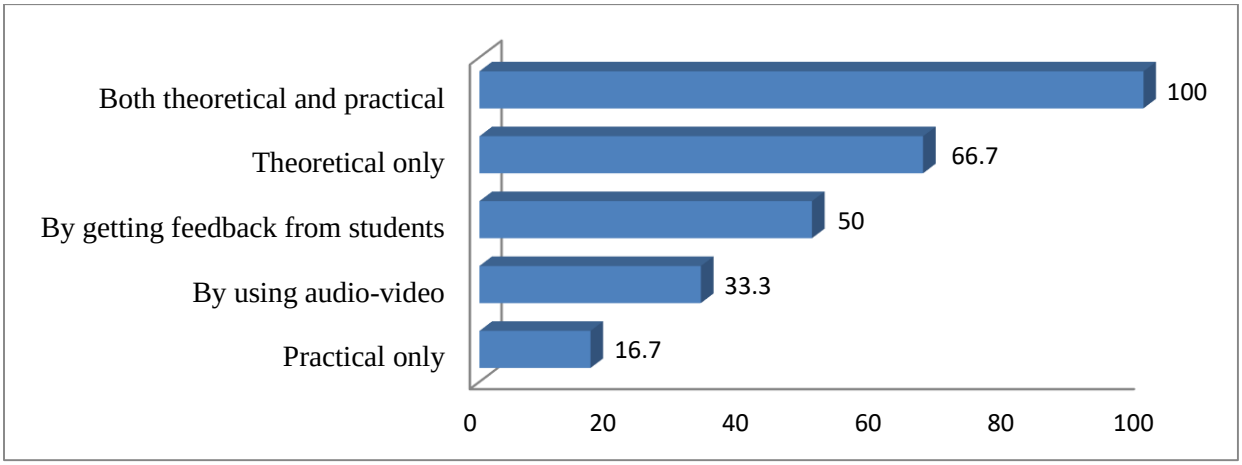


Figure 2. Mode of teaching/coaching sport science

Note. N = 6. As above question is a multiple choice based, sum of percentages is more than 100.

In response to the question of whether physical activity/fitness classes are required as part of the academic curriculum for sport science students, not surprisingly, 83 percent of respondents stated that physical fitness classes are not required for sport science professional students, while 17 percent believe that physical fitness classes are required as part of the students' other sport science academic curriculum. A majority of respondents, as expected, agree that physical exercise sessions are not required. The goal of the question was to see if the sport science directors make it mandatory for the students to engage and gain the rewards of doing so. Only 17 percent of the respondents who claimed physical fitness is mandatory for sport science students appear to be serious about it to boost their students' physical activity involvement.

Answering to the question on whether the physical fitness and sports is practiced as a co-curricular activity in college and whether sport science directors have been successful in attracting more students to participate in physical activity and sports, 33 percent of them affirmatively state that physical activity and sports are practiced as an extra-curricular activity and that they have been successful in attracting more students to participate in physical activity and sports. Surprisingly, 67 percent of respondents say that physical activity and sports are not yet recognized as co-curricular activities by both students and management, and that as sport science directors, they have failed to attract a greater number of students to participate in physical activity.

As the head of the sport science department, the principal's responsibility in promoting physical fitness and sports activities at the college level becomes critical. In this regard, when sport science directors were asked to rate their role or contribution to the students' engagement in regular physical activity and sports to its excellence. As a result, half of the respondents (50 percent) rated their individual college heads' collaboration or involvement in supporting physical activity and sports as "good," while 33 percent rated it as "average." Only 17 percent of them rated the cooperation of the head of sport science as "Excellent" in terms of supporting and enabling the required materials for students' engagement in physical activity and sports.

When asked if there are any means/techniques to evaluate the performance of students' physical fitness levels, 83 percent said unconditionally that there is no mechanism to analyze the performance or implementation of physical fitness levels at their individual colleges. However, 17 percent of respondents indicated that a mechanism for assessing students' physical

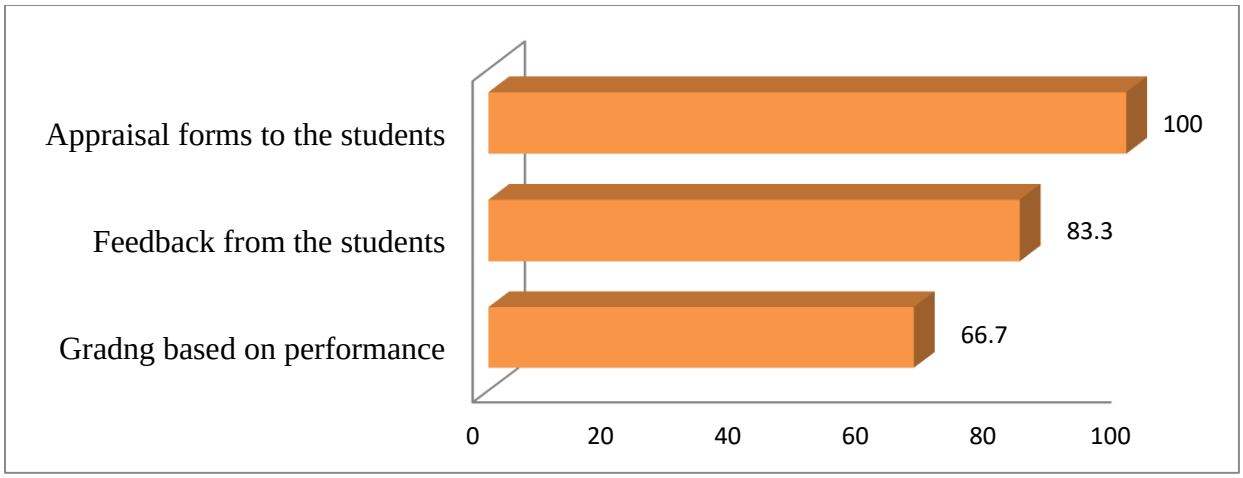


Figure 3. Method of physical activity level evaluation adopted in the college

Note. N = 6. As above question is a multiple choice based, sum of percentages is more than 100.

Among the six respondents who said they have a system in place for obtaining periodic feedback from students about their physical fitness level, 83.3 percent said they have a system in place for obtaining periodic feedback from students about their physical fitness level, and 100 percent said they have implemented the concept of evaluation forms in which students are asked to assess their physical fitness level by answering a series of questions. Another 66.7 percent of respondents said that sport science directors' can use the performance of the students to grade the students' physical activity or fitness levels (see Figure 3).

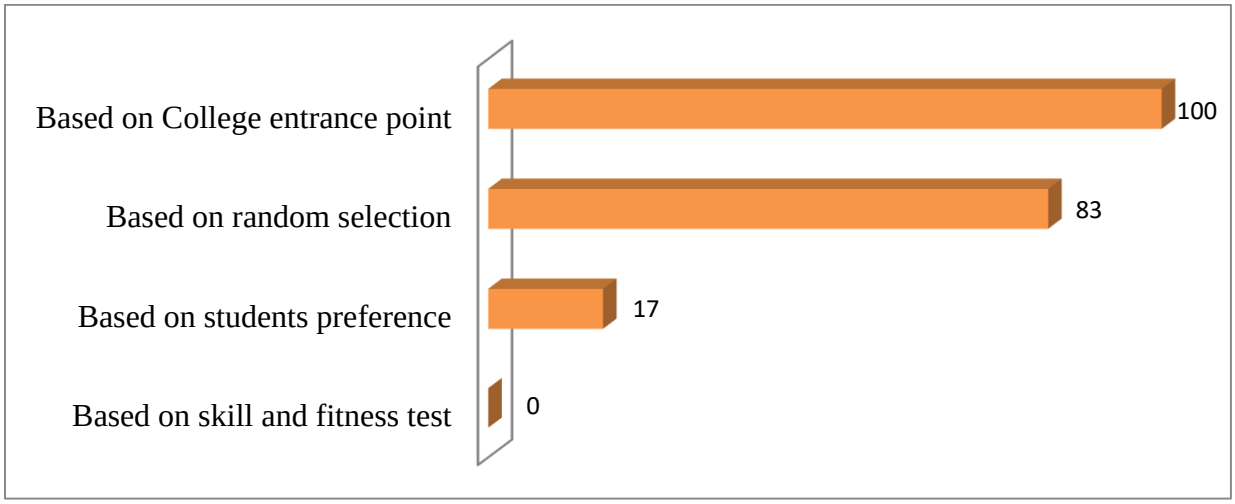


Figure 4. Method of selection of students for sport science department

Note. N = 6. As above question is a multiple choice based, sum of percentages is more than 100

When it comes to the issue of assigning students to the sport science department, the majority (100 percent) (see figure 4), of the respondents in the sample study say that the selection will be solely based on college entrance point – with the lowest scorers being forced to be assigned to the sport science department, while 83 percent say that the selection will be based on random selection. Similarly, 17 percent of respondents claimed that the students would be chosen based on their preferences based on previous experience, and that none of the students would be chosen based on their ability and fitness tests. From these, it is clear that sport science students must be chosen based on their unique interests, skill and fitness tests to be effective in the field of sport science.

In response to the question of whether the university's existing physical activity and sports facilities are sufficient to meet the needs of sport science students, 83 percent stated clearly that the existing physical activity and sports facilities are insufficient to meet the needs of the students, while 17 percent agreed that the current facilities are adequate or sufficient for the students to practice physical activities and sports. It is unsurprising that a large majority of respondents answered negatively to this question, as expected and as a reflection of the comments regarding the number of students that participated and the quality of facilities. Thus, insufficiency of physical activity and sports facilities would significantly affect the participation of students to physical activity.

Next, when asked about the number of dedicated sessions of physical activity and sports facility use for sport science students in a day, 67 percent categorically stated that they do not receive adequate sessions of facility use, while 33 percent stated that they do receive adequate sessions of facility use in a given day. This suggests that some institutions do not place a high enough priority on encouraging sport science students to engage in physical activity and sports by allocating specific hours for them to use sports facilities, particularly indoor and gymnasiums.

To the query on whether a separate budget for sport science educational programmes allocated or not, 83 percent of respondents agreed that the college management allocates a separate budget exclusively for sport science educational programs, while 17 percent said that the management does not allocate a separate budget exclusively for different physical activity and sports activities. Finally, in response to the question of whether funds allocated to sport science programs are sufficient, 50 percent of respondents stated categorically that funds are insufficient to conduct

various sport science programs such as physical fitness training and sports activities aimed at increasing students' physical activity levels. On the other hand, 33 percent of respondents responded that their college's funds are sufficient to carry out sport science programs. On the other side, 17 percent of respondents do not wish to express their opinion on whether or not expenditures allocated to sport science programs are sufficient.

Budgeting is an age-old problem that sport science programs, in particular, face across the country. The situation is the same in all higher education institutions. Though there is a revival of sorts for physical exercise and sports at the corporate level, physical education and sports activities are experiencing the reaction of an imbalanced prioritizing of interests at the academic level, with education overshadowing all other co-curricular activities. Thus, it is no surprise that roughly two-thirds of the sport science/physical education directors feel that they do not have sufficient budget to work with varied physical activities. Surprisingly, while more than 80 percent agreeing that distinct sport science programs should have their own funding, 50 percent believe that funds are insufficient. This indicates that funds are diverted to other budget categories because physical fitness and sports activities are not deemed vital enough.

Patterns of Sedentary and Physical Activity Behaviors

Table 12. Percentage of respondents spending time on computer/internet

	Respondents					
	Male		Female		Total	
Time spent on computer	f	%	f	%	f	%
None (0 hr/week)	10	7.5	13	9.8	23	8.7
Low (0.1 – 2.9 hr/week)	15	11.5	72	54.1	87	32.7
Moderate (3 – 6.9 hr/week)	41	30.8	33	24.8	74	27.8
High ($\geq$ 7 hr/week)	67	50.4	15	11.3	82	30.8
Total	133	100	133	100	266	100

As it can be observed from table 12 above, 8.7 percent of the respondents disclose that they don't have sedentary time to spend in technology based entertainment (computer/internet). Nearly one

third (32.7 percent) of them spent little amount of their sedentary time entertaining on computer. Moreover, 27.8 percent of the respondents responded that they spent 3 – 6.9 hour/week doing on computer. The rest 30.8 percent of them spent much of their time which is more than seven hours per week entertaining on computer. The breakups of the statements shown in Table 12 as perceived by the male respondents as well as female respondents were provided in Figure 5. Furthermore, about 8 percent of the male respondents honestly disclose that they don't have any sedentary time to spent doing on computer but about 12 percent of them have little time to spend their sedentary time on computer. Moreover, about 31 percent of the respondents replied that they spend moderate sedentary time (3 – 6.9 hour/week) doing on computer while the remaining half (50 percent) (see figure 6) of them spent more than seven hours per week entertaining on computer. On the other hand, among the female respondents, 9.8 percent of them don't have sedentary time to spent on doing computer, more than half (54.1 percent) of the respondents have little sedentary time to spend entertaining on computer. Moreover, 24.8 percent of the respondents replied that they spend moderate sedentary time (3 – 6.9 hour/week) doing on computer while the remaining 11.3 percent (see figure 5) of them spent more than seven hours per week entertaining on computer. From the above data one can conclude that male students spent high percentage (50.4 percent) of high sedentary time entertaining on computer as compared to female students (11.3 percent). However, female students spent high percentage (54.1 percent) of little sedentary time doing on computer than males (11.5 percent).

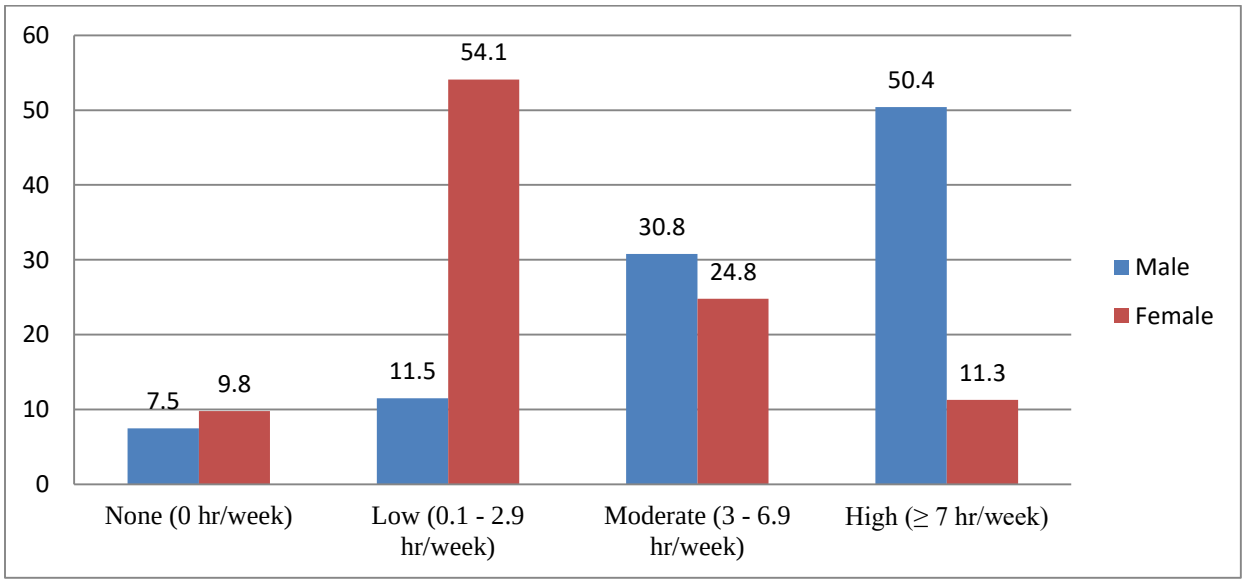


Figure 5. Rating of time spent on computer among male and female students

Table 13. Percentage of respondents spending time in playing video games

	Respondents					
	Male		Female		Total	
Time spent for playing video games	f	%	f	%	f	%
None (0 hr/week)	66	49.6	56	42.1	122	45.9
Low (0.1 – 2.9 hr/week)	30	22.6	38	28.6	68	25.6
Moderate (3 – 6.9 hr/week)	15	11.3	25	18.8	40	15.0
High ($\geq$ 7 hr/week)	22	16.5	14	10.5	36	13.5
Total	133	100	133	100	266	100

Looking at the time spent in playing video games, it is observed from Table 13 that 45.9 percent of the respondents disclose that they have no sedentary time to spent engaging in playing video games, one fourth (25.6 percent) of them spent little amount of their sedentary time engaging in playing video games. The remaining 28.5 percent of the respondents reported that they spent medium or more than seven hours per week engaging in playing video games. The breakups of the statements shown in Table 13 as perceived by the male respondents as well as female respondents were provided in Figure 6.

Looking into the male respondents, about fifty (49.6 percent) of the male respondents replied that they don't have any sedentary time to spent engaging in playing video games, 22.6 percent of them have little sedentary time to spent engaging in playing video games. Moreover, 11.3 percent of the respondents have moderate sedentary time and the remaining 16.5 percent (see figure 7) spent more than seven hours per week appealing in playing video games.

Likewise, among the female respondents, 42.1 percent of them entirely don't have sedentary time to spent engaging in playing video games, 28.6 percent of them have little sedentary time to spent engaging in playing video games and the rest of the respondents (29.3 percent) (see figure 6) replied that they spend moderate or more than seven hours per week engaging in playing video games. From the above data one can conclude that majority of both male and female respondents have little or don't have any sedentary time to spend engaging in playing video games.

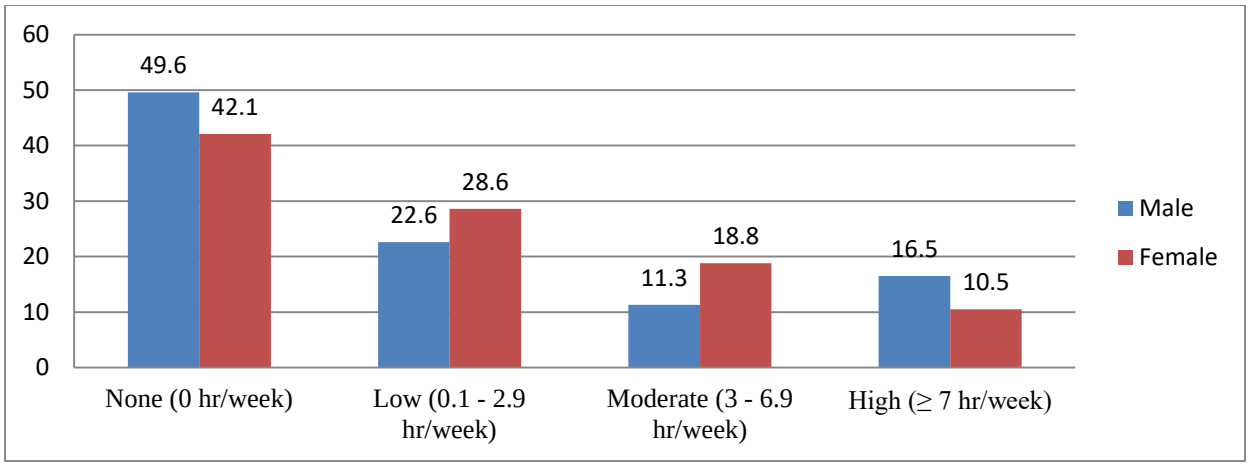


Figure 6. Rating of time spent in playing video games among male and female students

Table 14. Percentage of respondents spending time doing homework

	Respondents					
	Male		Female		Total	
Time spent for doing homework	f	%	f	%	f	%
None (0 hr/week)	14	10.5	15	11.3	29	10.9
Low (0.1 – 2.9 hr/week)	11	8.3	8	6.0	19	7.1
Moderate (3 – 6.9 hr/week)	28	19.6	20	15.0	46	17.3
High (≥ 7 hr/week)	82	61.6	90	67.7	172	64.7
Total	133	100	133	100	266	100

Answering to the query on the amount of time spent doing homework, it is observed from table 14 that 10.9 percent of the respondents responded that they don't have time to spend for doing homework and 7.1 percent of them spent little time doing homework. On the other hand, 17.3 percent spent average time doing homework. The majority of college sport science students (64.7 percent) spent more than seven hours per week doing homework. The breakups of the statements shown in Table 14 as perceived by the male respondents as well as female respondents were provided in Figure 7.

Looking into the male respondents, 18.8 percent of the male respondents replied that they have no or little sedentary time to spent doing homework. Moreover, about twenty (19.6 percent) of the

respondents replied that they have moderate sedentary time to spent doing homework. The majority of male respondents (61.6 percent) (see figure 7) spent much of their time which is more than seven hours per week doing homework. Likewise, among the female respondents, 17.3 percent of them have no or little sedentary time to spent doing homework and 15.0 percent of them spend average time doing homework. The majority of female students (67.7 percent) (see figure 7) replied that they spend more than seven hours per week doing homework. From the above data one can conclude that the majority (64.7 percent) of college sport science students (both male and female) spent much of their time doing homework in which male students engage in agricultural work (farming, harvesting, etc) and female students engaging in house work (cooking, etc).

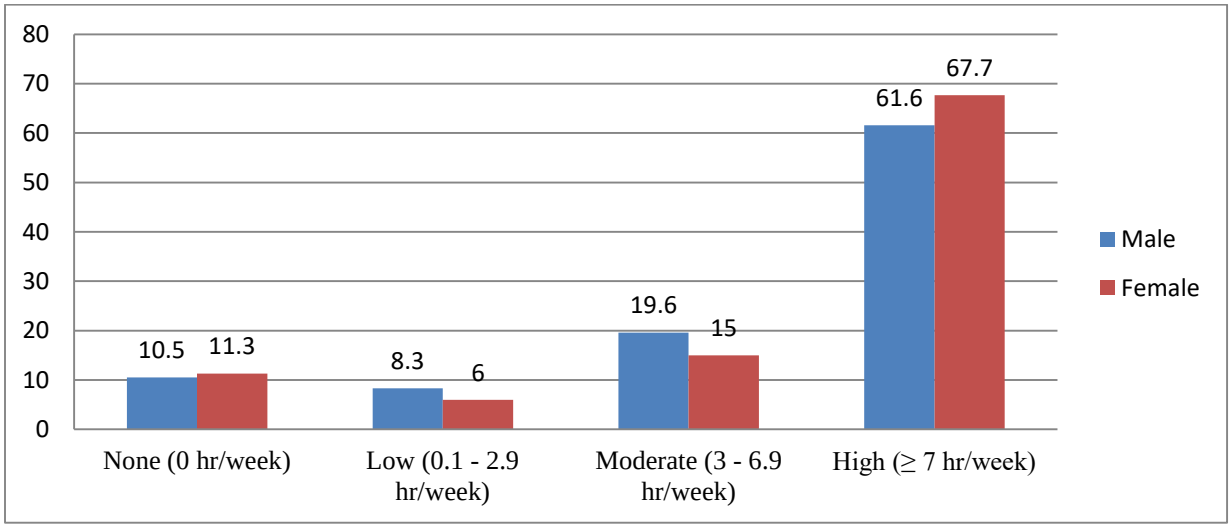


Figure 7. Rating of time spent doing homework among male and female students

Table 15. Percentage of respondents spending time studying/reading

	Respondents					
	Male		Female		Total	
Time spent for studying/reading	f	%	f	%	f	%
None (0 hr/week)	13	9.8	15	11.3	28	10.5
Low (0.1 – 2.9 hr/week)	17	12.8	25	18.8	42	15.8
Moderate (3 – 6.9 hr/week)	20	15.0	17	12.8	37	13.9
High (≥ 7 hr/week)	83	62.4	76	57.1	159	59.8
Total	133	100	133	100	266	100

When asked about the time spent on studying i.e reading for academic and other purpose, (see table 15), surprisingly 10.5 percent of the respondents honestly disclose that they don't have sedentary time to spent on studying, 15.8 percent of them spent little sedentary time for reading. Next to doing homework, the majority of college sport science students (59.8 percent) spent more than seven hours per week studying for academic and other purposes. The breakups of the statements shown in Table 15 as perceived by the male respondents as well as female respondents were provided in Figure 8.

Considering to the male respondents, 22.6 percent of the male respondents replied that they have no or little time to spend on studying. The majority (62.4 percent) of the male students (see figure 8) spent more than seven hours per week for study purposes. Similarly, among the female respondents, 11.3 percent of them entirely don't have time to spent on reading, 18.8 percent of them have little time to spent on studying, 12.8 percent have spent 3 – 6.9 hr/week for reading and the rest of the respondents (57.1 percent) (see figure 9) of them reported they spent substantial amount of time (more than seven hours per week) for studying. From the above data one can reach to the conclusion that the majority (59.8 percent) of college sport science students (both male and female) spent much of their time for academic and other study purposes.

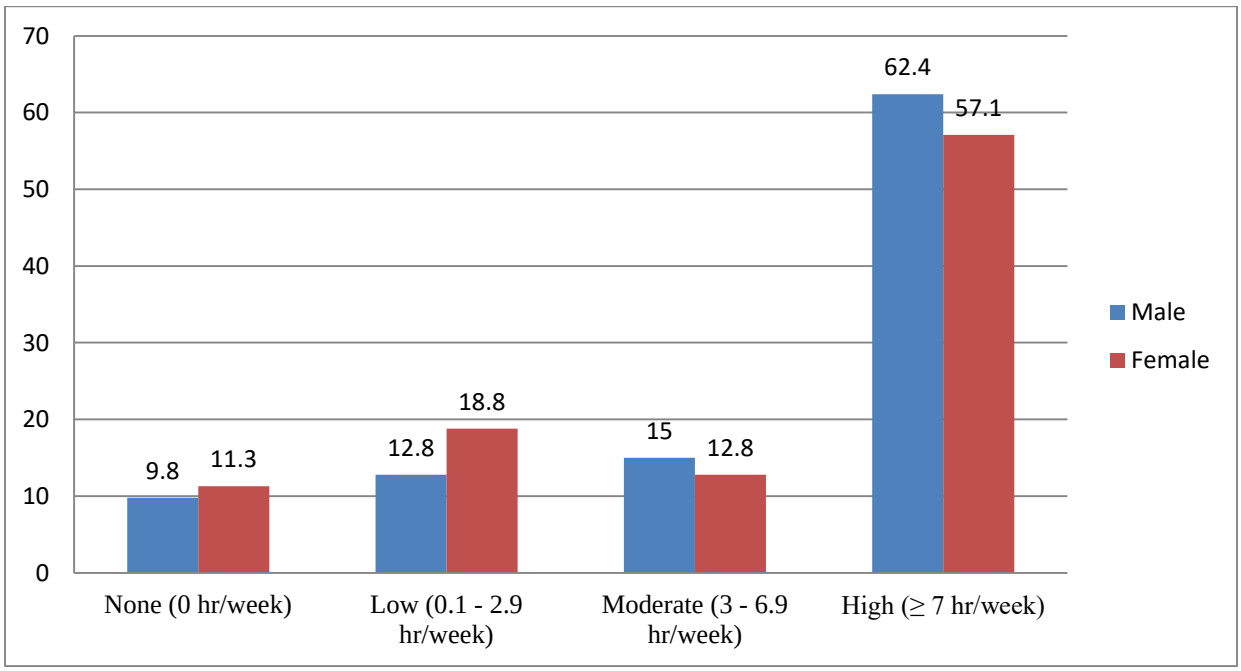


Figure 8. Rating of time spent on studying/reading among male and female students

Table 16. Percentage of respondents spending time sitting and talking (listening to music)

	Respondents					
	Male		Female		Total	
Time spent for sitting and talking	f	%	f	%	f	%
None (0 hr/week)	62	46.6	18	13.5	80	30.0
Low (0.1 – 2.9 hr/week)	52	39.1	24	18.1	76	28.6
Moderate (3 – 6.9 hr/week)	12	9.0	43	32.3	55	20.7
High ($\geq$ 7 hr/week)	7	5.3	48	36.1	55	20.7
Total	133	100	133	100	266	100

In continuation, when asked about time spent for socialization (see table 16), surprisingly 30.0 percent of the respondents honestly disclose that they don't have sedentary time to spent for socialization (sitting/talking with friends) and 28.6 percent of them spent little sedentary time for sitting/talking with their friends. Equal number of the students (20.7 percent) spent 3 – 6.9 hr/week or more than seven hours per week on sitting/talking with their school friends. The breakups of the statements shown in Table 16 as perceived by the male respondents as well as female respondents were provided in Figure 9.

Looking into the male respondents, more than one third (39.1 percent) of the male respondents have spent little time on sitting/talking with their friends. A small number of the students (14.3 percent) spent moderate or more than seven hours per week for socialization. The majority (46.6 percent) of the male students (see figure 10) entirely have no time to spend on sitting/talking with their friends. Similarly, among the female respondents, 13.5 percent of them entirely don't have time to spend on sitting/talking with their friends and 18.1 percent of them have little time to spend on socialization. Nearly one third (32.3 percent) of the female students spent 3 – 6.9 hr/week for sitting/talking with friends. The rest of female students which is more than one third (36.1 percent) (see figure 9) reported they spent substantial amount of time, which is; more than seven hours per week for socialization (sit and talk with their school friends). From the above data one can reach to the conclusion that a high percentage (36.1 percent) of female students spent much of their time for socializing with their friends as compared to male students (5.3 percent).

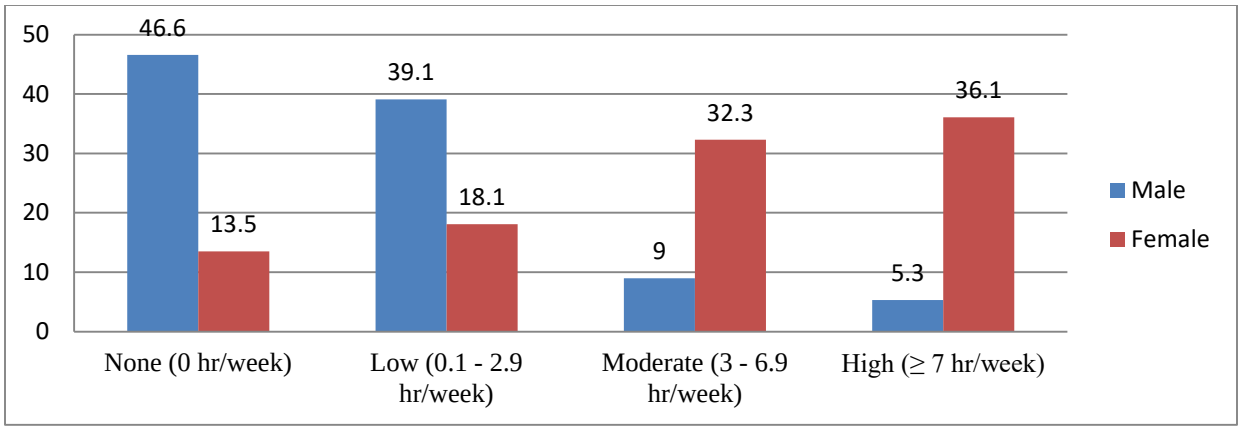


Figure 9. Rating of time spent on sitting and talking among male and female students

Table 17. Percentage of respondents spending time talking on telephone

	Respondents					
	Male		Female		Total	
Time spent talking on telephone	f	%	f	%	f	%
None (0 hr/week)	54	40.6	38	28.6	92	34.6
Low (0.1 – 2.9 hr/week)	68	51.1	50	37.6	118	44.4
Moderate (3 – 6.9 hr/week)	8	6.0	29	21.8	37	13.9
High (≥ 7 hr/week)	3	2.3	16	12.0	19	7.1
Total	133	100	133	100	266	100

Further, when asked about time spent talking on telephone (see table 17), surprisingly more than one third (34.6 percent) of the respondents honestly disclose that they don't have time to spent for talking on telephone, 13.9 percent of them spent average time talking on telephone and the majority of the respondents (44.4 percent) spent little time talking on telephone. Very small number of the respondents (7.1 percent) spent more than seven hours per week talking on telephone with their school friends, families, and relatives. The breakups of the statements shown in Table 17 as perceived by the male respondents as well as female respondents were provided in Figure 10.

Looking into the male respondents, more than one third (40.6 percent) of the male respondents entirely have no sedentary time to spend talking on telephone. More than half percent (51.1 percent) of them spent little time talking on telephone with their friends, families and relatives. A

very small number of the students (8.3 percent) spent moderate or more than seven hours per week talking on telephone (see figure 10). Similarly, among the female respondents, 28.6 percent of them entirely don't have time to spend talking on telephone with their friends and more than one third (37.6 percent) of them have little time to spend talking on telephone. 21.8 percent of the female students spent 3 – 6.9 hr/week talking on telephone with their friends. The rest of female students (12.0 percent) (see figure 11) reported they spent substantial amount of time, which is, more than seven hours per week for talking on telephone with their school friends, families and relatives. From the above data we can understand that a high percentage (12.0 percent) of female college sport science students spent much of their time for talking on telephone with their friends as compared to male students (2.3 percent).

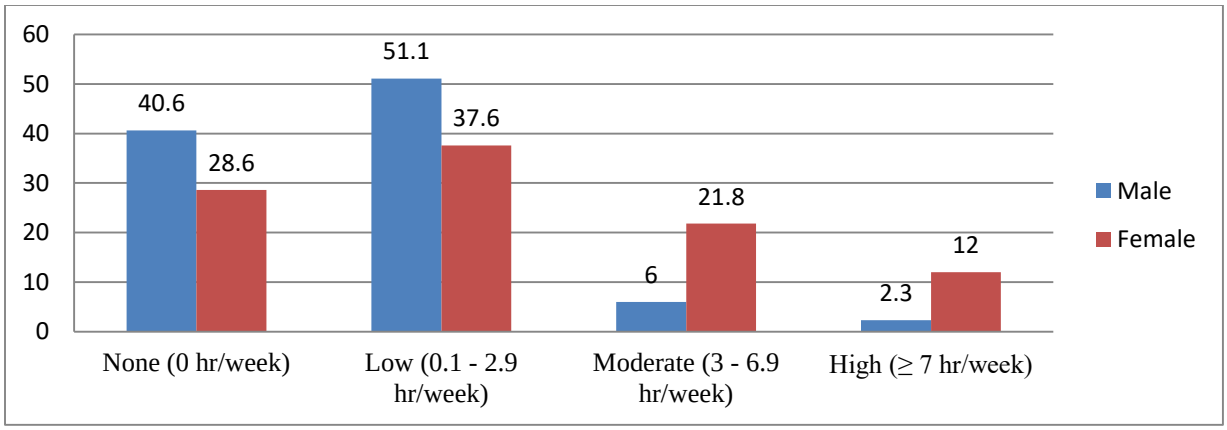


Figure 10. Rating of time spent talking on telephone among male and female students

Table 18. Percentage of respondents spending time for watching TV

	Respondents					
	Male		Female		Total	
Time spent for watching TV	f	%	f	%	f	%
None (0 hr/week)	32	24.1	16	12.0	48	18.1
Low (0.1 – 6.9 hr/week)	34	25.6	26	19.5	60	22.6
Moderate (7 – 13.9 hr/week)	40	30.0	30	22.6	70	26.3
High (14 – 27.9 hr/week)	16	12.0	32	24.1	48	18.0
Very High (≥ 28 hr/week)	11	8.3	29	21.8	40	15.0
Total	133	100	133	100	266	100

In continuation, when asked about time spent for watching TV (see table 18), amazingly 18.1 percent of the respondents honestly disclose that they don't have sedentary time to spent for watching TV, 22.6 percent of them spent little sedentary time for watching TV. More than one fourth of the respondents (26.3 percent) spent average time for watching television. On the other hand, one third of the respondents (33.0 percent) replied that they spent high or very high amount of time for watching TV. The breakups of the statements shown in Table 18 as perceived by the male respondents as well as female respondents were provided in Figure 11.

Looking into the male respondents, nearly one fourth (24.1 percent) of the male respondents entirely has no time to spend for watching TV. Another one fourth of the respondents (25.6 percent) spent little time for watching television. 42.0 percent of them spent moderate or high amount of time for watching television. A very small number of the students (8.3 percent) spent more than twenty eight hours per week for watching television (see figure 11). Similarly, among the female respondents, 12.0 percent of them entirely don't have time to spend watching television and 19.5 percent of them have little time to spend watching television. 22.6 percent of the female students spent moderate (7 – 13.9 hr/week) watching television and nearly one fourth (24.1 percent) of the respondents spent high amount of time, which is, 14 – 27.9 hr/week for watching TV. The rest of female students (21.8 percent) (see figure 12) reported they spent substantial amount of time, which is, more than twenty eight hours per week for watching television. From the above data we can understand that a high percentage (21.8 percent) of female sport science students spent much of their time for watching television as compared to the male students (8.3 percent).

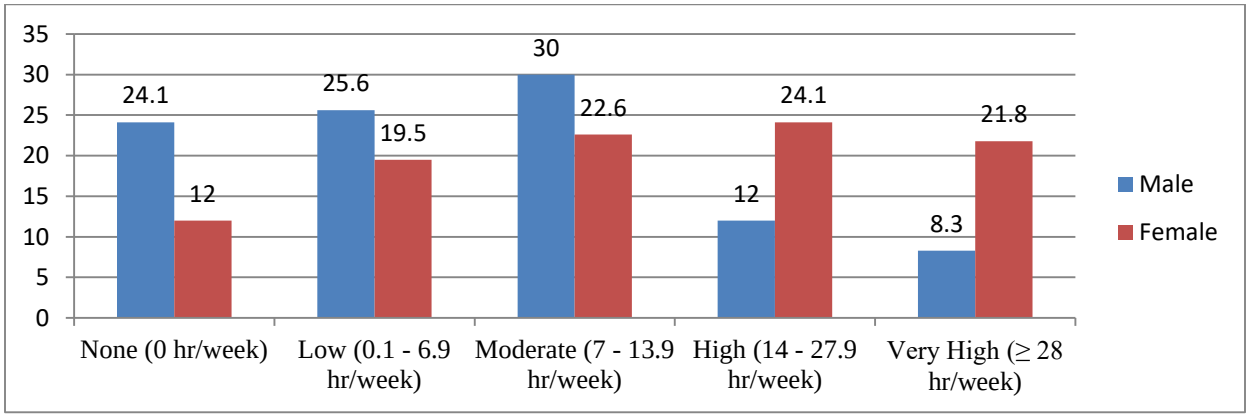


Figure 12. Rating of time spent watching TV among male and female students

Table 19. Percentage of respondents on physical activity level

	Respondents					
	Male		Female		Total	
Physical Activity Level	f	%	f	%	f	%
Inactive (0 hr/wk)	8	6.0	10	7.5	18	6.8
Low (≤ 150 mins/wk of MOD or ≤ 60 mins/wk of VIG)	15	11.3	20	15.0	35	13.2
Moderate (> 150 and ≤ 300 mins/wk of MOD or > 60 and ≤ 120 mins/wk of VIG)	30	22.6	40	30.1	70	26.3
High (> 300 mins/wk of MOD or > 120 mins/wk of VIG)	80	60.1	63	47.4	143	53.7
Total	133	100	133	100	266	100

In continuation, when asked about time spent for physical activity participation (see table 19), amazingly only 20 percent of the respondents honestly reported low or no physical activity participation. More than one fourth of the respondents (26.3 percent) spent average time for physical activity engagement. On the other hand, the majority of the respondents (53.7 percent) reported a high amount of physical activity (> 300 minutes/week of moderate activity or > 120 minutes/week of vigorous activity). The breakups of the statements shown in Table 19 as perceived by the male respondents as well as female respondents were provided in Figure 12. Looking into the male respondents, 6.0 percent of them reported no physical activity participation at all whereas 11.3 percent of the male respondents reported a low amount of physical activity engagement (≤ 150 minutes/week of MOD or ≤ 60 minutes/week of VIG). The majority of male respondents (60.1 percent) reported a high amount of physical activity (> 300 minutes/week of moderate activity or > 120 minutes/week of vigorous activity) (See figure 13). Similarly, among the female respondents, 7.5 percent of them reported no physical activity engagement at all whereas 15.0 percent of the female respondents reported a low amount of physical activity participation (≤ 150 minutes/week of MOD or ≤ 60 minutes/week of VIG). On the other hand, 30.1 percent of the female students reported a moderate amount of physical activity (> 150 and ≤ 300 minutes/week of MOD or > 60 and ≤120 minutes/week of VIG) and 47.4 percent of them reported a high amount of physical activity (> 300 minutes/week of moderate activity or > 120 minutes/week of vigorous activity) (See figure 12). Therefore, a high percentage (60.1 percent) of male students have a high amount of physical activity engagement as compared to the female students (47.4 percent).

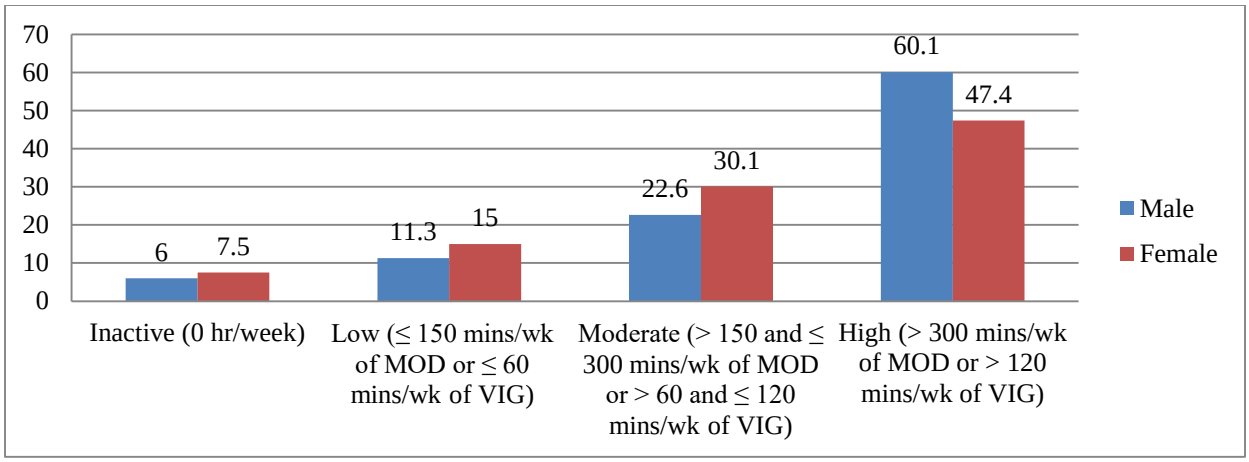


Figure 12. Rating of time spent for physical activity among male and female students

Test of Hypotheses:

Hypothesis # 1

H_0: There is no significant difference in mean agreement scores of weekly frequency of vigorous physical activity between the male and female college sport science students.

H_1: There is a significant difference in mean agreement scores of weekly frequency of vigorous physical activity between the male and female college sport science students.

Table 20. Results of t-test of the weekly frequency of vigorous physical activity by gender.

Variable	Gender	N	Mean	SD	t-value	p-value
Weekly Frequency of Vigorous Physical Activity	Male	133	3.56	1.83	-10.342	0.000*
	Female	133	1.68	1.03		

* Significant at 5 % level.

Independent t-test result:

From the above t-test result (see table 20), it is observed that t-value is -10.342 (p-value = 0.000) which is less than the significant alpha level of 0.05 (at 95 percent confidence level), there is a significant difference in mean weekly frequency of vigorous physical activity rating score between the male and female college sport science students ($t= -10.342$, $p<0.05$) dimension at 5% level of significance. Hence, the null hypothesis (H_0) is rejected and alternative hypothesis (H_1) is accepted. As the mean rating score of the male respondents (mean = 3.56) is higher than respondents of female (mean = 1.68), the male respondents seem to be more significantly take part

on vigorous physical activity more days per week as compared to female students. Thus, one would conclude that male college sport science students' weekly frequency of vigorous physical activity participation is better and they were more oriented as well as well understood towards improving the physical activity culture in their respective colleges.

Hypothesis # 2

H_0: There is no significant difference in mean agreement score of weekly frequency of moderate physical activity between the male and female college sport science students.

H_1: There is a significant difference in mean agreement score of weekly frequency of moderate physical activity between the male and female college sport science students.

Table 21. Results of t-test of the weekly frequency of moderate physical activity by gender

Variable	Gender	N	Mean	SD	t-value	p-value
Weekly Frequency of Moderate Physical Activity	Male	133	3.31	1.32	-10.023	0.000*
	Female	133	1.83	1.08		

* Significant at 5 % level.

Independent t-test result:

From the above t-test result (see table 21), it is observed that t-value is -10.023 (p-value = 0.000) which is less than the significant alpha level of 0.05 (at 95 percent confidence level), there is a significant difference in mean weekly frequency of moderate physical activity rating score between the male and female college sport science students ($t= -10.023$, $p<0.05$) dimension at 5% level of significance. Hence, the null hypothesis (H_0) is rejected and alternative hypothesis (H_1) is accepted. As the mean rating score of the male respondents (mean = 3.31) is higher than respondents (students) of female (mean = 1.83), the male respondents seem to be more significantly take part on moderate physical activity more days per week as compared to female students. Thus, one would conclude that male sport science students' weekly frequency of moderate physical activity participation is better than female students and they were more oriented and well understood towards improving the physical activity culture in their respective colleges.

Hypothesis # 3

H_0: There is no significant difference in mean agreement score weekly frequency of walking between the male and female college sport science students.

H_1: There is a significant difference in mean agreement score weekly frequency of walking between the male and female college sport science students.

Table 22. Results of t-test of the weekly frequency of walking by gender

Variable	Gender	N	Mean ± SD	t-value	p-value
Weekly Frequency of Walking	Male	133	5.88 ± 1.11	-5.934	0.000*
	Female	133	5.03 ± 1.22		

* Significant at 5 % level.

Independent t-test result:

From the above t-test result (see table 22), it is observed that t-value is -5.934 (p-value = 0.000) which is less than the significant alpha level of 0.05 (at 95 percent confidence level), there is a significant difference in mean weekly frequency of participation on walking physical activity rating score between the male and female college sport science students ($t= -5.934$, $p<0.05$) dimension at 5% level of significance. Hence, the null hypothesis (H_0) is rejected and alternative hypothesis (H_1) is accepted. As the mean rating score of the male respondents (mean = 5.88) is higher than respondents (students) of female (mean = 5.03), the male respondents seem to be more significantly take part on walking more days per week as compared to female students. Thus, one would conclude that male college sport science students' weekly frequency of taking part in walking physical activity is better than the female students and they were more oriented and well understood towards improving the physical activity culture in their respective colleges.

Hypothesis # 4:

H_0: There is no significant difference in mean agreement score of weekly duration of vigorous physical activity between the male and female college sport science students.

H_1: There is a significant difference in mean agreement score of weekly duration of vigorous physical activity between the male and female college sport science students.

Table 23. Results of t-test of the Weekly Duration of Vigorous Physical Activity by gender

Variable	Gender	N	Mean ± SD	t-value	p-value
Weekly Duration of Vigorous Physical Activity	Male	133	6.48 ± 3.46	-12.642	0.000*
	Female	133	2.28 ± 1.65		

* Significant at 5 % level.

Independent t-test result:

From the above t-test result (see table 23), it is observed that t-value is -12.642 (p-value = 0.000) which is less than the significant alpha level of 0.05 (at 95 percent confidence level), there is a significant difference in mean weekly duration of vigorous physical activity rating score between the male and female college sport science students (t= -12.642, $p<0.05$) dimension at 5% level of significance. Hence, the null hypothesis (H_0) is rejected and alternative hypothesis (H_1) is accepted. As the mean rating score of the male respondents (mean = 6.48) is higher than respondents (students) of female (mean = 2.28), the male respondents seem to be significantly spent more time on doing vigorous physical activity per week as compared to female students. Thus, one would conclude that male college sport science students' weekly duration of vigorous physical activity participation is better than the female students.

Hypothesis # 5:

H_0: There is no significant difference in mean agreement score of weekly duration of moderate physical activity between the male and female college sport science students.

H_1: There is a significant difference in mean agreement score of weekly duration of moderate physical activity between the male and female college sport science students.

Table 24. Results of t-test of the Weekly Duration of Moderate Physical Activity by gender.

Variable	Gender	N	Mean ± SD	t-value	p-value
Weekly Duration of Moderate Physical Activity	Male	133	6.03 ± 2.29	-10.740	0.000*
	Female	133	3.12 ± 2.12		

* Significant at 5 % level.

Independent t-test result:

From the above t-test result (see table 24, it is observed that t-value is -10.740 (p-value = 0.000) which is less than the significant alpha level of 0.05 (at 95 percent confidence level), there is a significant difference in mean weekly duration of moderate physical activity rating score between the male and female college sport science students (t= -10.740, p<0.05) dimension at 5% level of significance.

Hence, the null hypothesis (H_0) is rejected and alternative hypothesis (H_1) is accepted. As the mean rating score of the male respondents (mean = 6.03) is higher than respondents (students) of female (mean = 3.12), the male respondents seem to be significantly spent more time on doing moderate physical activity per week as compared to female students. Thus, one would conclude that male college sport science students' weekly duration of moderate physical activity participation is better than the female students. On the other hand, female students spent less time doing moderate physical activity per week as compared to the male students.

Hypothesis # 6:

H_0: There is no significant difference in mean agreement score of weekly duration of walking between the male and female college sport science students.

H_1: There is a significant difference in mean agreement score of weekly duration of walking between the male and female college sport science students.

Table 25. Results of t-test of the Weekly Duration of Walking by gender

Variable	Gender	N	Mean ± SD	t-value	p-value
Weekly Duration of Walking	Male	133	8.62 ± 2.67	-10.121	0.000*
	Female	133	5.85 ± 1.67		

* Significant at 5 % level.

Independent t-test result:

From the above t-test result (see table 25), it is observed that t-value is -10.121 (p-value = 0.000) which is less than the significant alpha level of 0.05 (at 95 percent confidence level), there is a significant difference in mean weekly time spent on walking physical activity rating score between

the male and female college sport science students (t= -10.121, p<0.05) dimension at 5% level of significance. Hence, the null hypothesis (H_0) is rejected and alternative hypothesis (H_1) is accepted. As the mean rating score of the male respondents (mean = 8.62) is higher than respondents (students) of female (mean = 5.85), the male respondents seem to be significantly spent more time on walking per week as compared to female students. Thus, one would conclude that male college sport science students' have more freedom to go out and spent more time on walking is better than the female students. On the other hand, female students have less freedom to spend more time on walking as compared to the male students.

Hypothesis # 7:

H_0: There is no significant difference in mean agreement scores of weekly duration of sitting between the male and female college sport science students.

H_1: There is a significant difference in mean agreement scores of weekly duration of sitting between the male and female college sport science students.

Table 26. Results of t-test of the Weekly Duration of Sitting by gender

Variable	Gender	N	Mean ± SD	t-value	p-value
Weekly Duration of Sitting	Male	133	20.95 ± 6.09	-4.409	0.000*
	Female	133	17.95 ± 4.91		

* Significant at 5 % level.

Independent t-test result:

From the above t-test result (see table 26), it is observed that t-value is -4.409 (p-value = 0.000) which is less than the significant alpha level of 0.05 (at 95 percent confidence level), there is a significant difference in mean time spent on sitting in the last seven days rating score between the male and female college sport science students (t= -4.409, p<0.05) dimension at 5% level of significance. Hence, the null hypothesis (H_0) is rejected and alternative hypothesis (H_1) is accepted. As the mean rating score of the male respondents (mean = 20.95) is higher than respondents (students) of female (mean = 17.95), the male respondents seem to be significantly spent more time on sitting in the last seven days as compared to female students. Thus, one would conclude that male sport science students' spent more time on sitting than the female students.

Hypothesis # 8:

H_0: There is no significant difference in mean agreement score of total physical activity MET of vigorous between the male and female college sport science students.

H_1: There is a significant difference in mean agreement score total physical activity MET of vigorous between male and female college sport science students.

Table 27. Results of t-test of the total physical activity MET of vigorous by gender

Variable	Gender	N	Mean ± SD	t-value	p-value
Total Physical Activity MET of Vigorous	Male	133	14562.16 ± 8484.63	15.341	0.000*
	Female	133	2732.93 ± 2663.47		

* Significant at 5 % level.

Independent t-test result:

From the above t-test result, it is observed that there is a significant difference (see table 27) in mean total physical activity MET of vigorous in the last seven days rating score between the male and female college sport science students ($t= 15.341$, $p<0.05$) which is less than the significant alpha level of 0.05 (at 95 percent confidence level). Hence, the null hypothesis (H_0) is rejected and alternative hypothesis (H_1) is accepted. As the mean rating score of male respondents (mean = 14562.16) is higher than respondents of female (mean = 2732.93), the male respondents seem to be significantly high total physical activity MET of vigorous in the last seven days than female students. The participation of male students' total physical activity MET of vigorous in the last seven days is higher than the female students. Thus, one would conclude that male college sport science students' total physical activity MET of vigorous in the last seven days is better and they were more oriented towards improving the physical activity culture in their respective colleges.

Hypothesis # 9:

H_0: There is no significant difference in mean agreement score of total physical activity MET of moderate between the male and female college sport science students.

H_1: There is a significant difference in mean agreement score of total physical activity MET of moderate between the male and female college sport science students.

Table 28. Results of t-test of the total physical activity MET of moderate by gender

Variable	Gender	N	Mean ± SD	t-value	p-value
Total Physical Activity MET of moderate	Male	133	5463.46 ± 3699.62	9.446	0.000*
	Female	133	2126.62 ± 1705.61		

* Significant at 5 % level.

Independent t-test result:

From the above t-test result, it is observed that there is a significant difference (see table 28) in mean total physical activity MET of moderate in the last seven days rating score between the male and female college sport science students ($t= 9.446$, $p<0.05$) which is less than the significant alpha level of 0.05 (at 95 percent confidence level). Hence, the null hypothesis (H_0) is rejected and alternative hypothesis (H_1) is accepted. As the mean rating score of male respondents (mean = 5463.46) is higher than respondents (students) of female (mean = 2126.62), the male respondents seem to be significantly high total physical activity MET of moderate in the last seven days than female students. The participation of male students' total physical activity MET of moderate in the last seven days is higher than the female students. Thus, one would conclude that male college sport science students' total physical activity MET of moderate in the last seven days is better and they were more oriented towards improving physical activity culture in their respective colleges.

Hypothesis # 10:

H_0: There is no significant difference in mean agreement scores of total physical activity MET of walking between the male and female sport science college students.

H_1: There is a significant difference in mean agreement scores of total physical activity MET of walking between the male and female sport science college students.

Table 29. Results of t-test of the total physical activity MET of walking by gender

Variable	Gender	N	Mean ± SD	t-value	p-value
Total Physical Activity MET of walking	Male	133	10258.78 ± 4385.79	10.013	0.000*
	Female	133	5873.37 ± 2505.86		

* Significant at 5 % level.

Independent t-test result:

From the above t-test result, it is observed that there is a significant difference (see table 29) in mean total physical activity MET of walking in the last seven days rating score between the male and female college sport science students ($t= 10.013$, $p<0.05$) which is less than the significant alpha level of 0.05 (at 95 percent confidence level). Hence, the null hypothesis (H_0) is rejected and alternative hypothesis (H_1) is accepted. As the mean rating score of male respondents (mean = 10258.78) is higher than the respondents of female (mean = 5873.37), the male respondents seem to be significantly high total physical activity MET of walking in the last seven days than female students. The participation of male students' total physical activity MET of walking in the last seven days is higher than the female students.

The Students Physical Activity Level Based on the Study Variables

Table 30. Demographic Characteristics of the Study Participants

Variables		f	%
Gender	Male	133	50
	Female	133	50
Age	18 – 21	78	29.3
	22 - 25	167	62.8
	26 - 30	21	7.9
Body Mass Index (BMI)	Under weight	18	6.8
	Normal	234	87.9
	Overweight	12	4.5
	Obese	2	0.8
Physical Activity Level	High	38	14.3
	Moderate	149	56.0
	Low	79	29.7
Academic Achievement (GPA)	2.0 – 2.5	33	12.4
	2.6 – 3.1	88	33.1
	3.2 – 3.5	80	30.1
	≥3.6	65	24.4
Attitudes	Positive Attitude	35	13.2
	Negative Attitude	231	86.8

Table 31. Frequency Results of Physical Activity Based on gender according to IPAQ Survey data for Category Score

Variable		Category Score					
		High		Moderate		Low	
		f	%	f	%	f	%
Gender	Male	72	54.1	46	34.6	15	11.3
	Female	12	9.0	53	39.9	68	51.1

When the physical activity level of the study participants were analyzed on the bases of gender, it is observed from table 31 above that 11.3 percent of the male participants were observed in the low physical activity category, 34.6 percent in the moderate physical activity category and 54.1 percent indicated high physical activity. On the other hand, among the female respondents, 51.1 percent of the female participants were demonstrated low physical activity, 39.9 percent and 9.0 percent of females were showed moderate and high physical activity levels, respectively. From the above data one can conclude that male students showed a higher percentage (54.1 percent) of high physical activity level as compared to female students (9.0 percent). However, female students displayed a high percentage (51.1 percent) of low level of physical activity as compared to males (11.3 percent).

Table 32. Frequency Results of Physical Activity Based on age according to IPAQ Survey data for Category Score

Variable		Category Score					
		High		Moderate		Low	
		f	%	f	%	f	%
Age	18 - 21	15	19.2	21	26.9	42	53.9
	22 - 25	75	44.9	63	37.7	29	17.4
	26 - 30	8	38.1	11	52.4	2	9.5

As it can be observed from table 32 above, the study participants were categorized into 3 ranges of age as 18 – 21 years, 22 – 25 years and 26 – 30 years in order to analyze the physical activity level of the study participants. Among study participants in the 18-21 age range, 19.2 percent fall

into high physical activity level, 26.9 percent in the moderate physical activity level and 53.9 percent in the low physical activity level. In the 22-25 age range, 44.9 percent seen in the high, 37.7 percent in the moderate and 17.4 percent in the low physical activity level. In the last age range, 38.1 percent of them demonstrated high physical activity level, whereas, 52.4 percent and 9.5 percent showed moderate and low physical activity levels, respectively. From the above data one can conclude that the study participants found in the age range of 22 – 25 showed a high percentage (44.9 percent) of high physical activity level, the study participants found in the age range of 18 – 21 showed a high percentage (53.9 percent) of low physical activity level and the study participants found in the age range of 26 – 30 showed a high percentage (52.4 percent) of medium physical activity level..

Table 33. Frequency Results of Physical Activity Based on body mass index according to IPAQ Survey data for Category Score

Variable		Category Score					
		High		Moderate		Low	
		f	%	f	%	f	%
Body Mass Index (BMI)	Underweight	0	0	2	11.1	16	88.9
	Normal	98	41.9	109	46.6	27	11.5
	Overweight	0	0	5	41.7	7	58.3
	Obese	0	0	0	0	2	100

When the characteristics of the study participants were analyzed based on their body mass index, it is observed from table 33 above, none (0 percent) of the study participants were seen to fall under the underweight group in the high physical activity level, whereas, 11.1 percent and 88.9 percent underweight students were seen in the moderate and low physical activity levels respectively. Most of the students were in the normal body mass index among them 41.9 percent were seen in the high physical activity level, 46.6 percent in the moderate and 11.5 percent in the low physical activity level.

Some of the students were also seen in the overweight body mass index classification. Among them, none (0 percent) had high physical activity levels, 41.7 percent had moderate physical

activity levels and 58.3 percent had a low level of physical activity levels. A very few students were seen in the obese body mass index group. All obese students (100 percent) demonstrated low physical activity level. There were no, (0 percent) obese students who demonstrated high and moderate physical activity level.

From the above data one can conclude that the study participants found in the underweight , overweight and obese body mass index showed a high percentage of low physical activity level compared to the normal body mass index students. It is only normal body mass index students that showed high percentage of high physical activity level.

Table 34. Frequency Results of Physical Activity Based on Academic Achievement according to IPAQ Survey data for Category Score

Variable		Category Score					
		High		Moderate		Low	
		f	%	f	%	f	%
Academic Achievement	2.0 – 2.5	0	0	7	21.2	26	78.8
(GPA)	2.6 – 3.1	40	45.5	40	45.5	8	9.0
	3.2 – 3.5	42	52.5	28	35.0	10	12.5
	≥3.6	47	72.3	13	20.0	5	7.7

As it can be observed from table 34, the study participants were categorized into 4 ranges of academic achievement as satisfactory (2.0 – 2.4 GPA), good (2.5 – 3.0 GPA), distinction (3.2 – 3.5 GPA) and great distinction (≥3.6 GPA) in order to analyze the physical activity level of the study participants based on academic achievement. Among the study participants in the satisfactory academic achievement range, none (0 percent) of the students showed high physical activity level and 21.2 percent demonstrated moderate physical activity level. The majority of the students (78.8 percent) indicated low physical activity level. In the good academic achievement range group, 9.0 percent of the students were seen in the low physical activity level, whereas, equal number of the students (45.5 percent) were seen in both high and moderate levels of physical activity level. In the distinction academic achievement category, most of the students (52.5 percent) demonstrated high physical activity level, 35.0 percent showed moderate physical activity level and a very little number of students (12.5 percent) showed low physical activity levels. In

the great distinction academic achievement range category, the majority of the students (72.3 percent) showed high physical activity level, whereas, 20.0 percent and 7.7 percent demonstrated moderate and low physical activity levels, respectively. From the above data one can conclude that the study participants found in the great distinction (≥3.6 GPA) academic achievement range category showed a high percentage (73.2 percent) of high physical activity level whereas the study participants found in the satisfactory academic achievement range category (2.0 – 2.4 GPA) showed a high percentage (78.8 percent) of low physical activity level. The reality is that frequent physical activity involvement led to great academic achievement because regular physical activity keeps a person intellectually attentive.

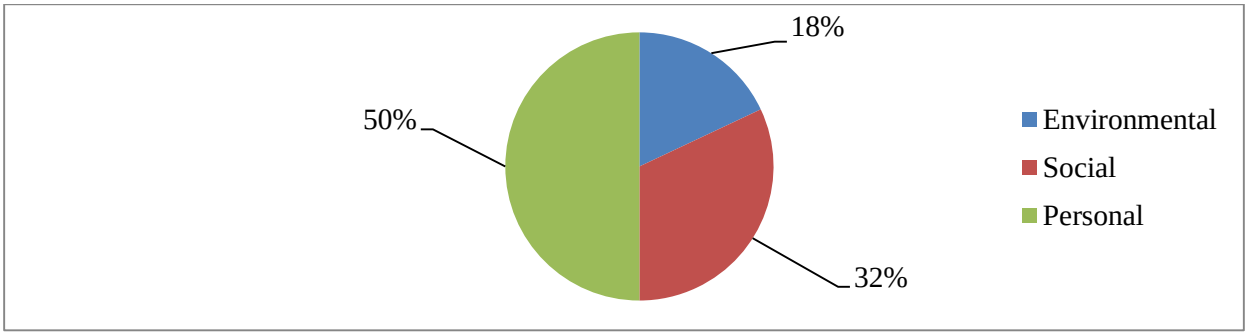
Table 35. Frequency Results of Physical Activity Based on students' attitude towards physical activity according to IPAQ Survey data for Category Score

Variable		Category Score					
		High		Moderate		Low	
		f	%	f	%	f	%
Students Attitude	Positive Attitude	31	88.6	4	11.4	0	0
	Negative Attitude	0	0	15	6.5	216	93.5

When the characteristics of the study participants were analyzed based on their attitude towards physical activity, it is observed from table 35, the majority (88.6 percent) of the students who have positive attitude to the participation of physical activity showed high physical activity level, whereas, 11.4 percent of the students who have positive attitude towards the participation of physical activity were seen in the moderate physical activity level. None (0 percent) of the students who have positive attitude to the participation of physical activity demonstrated low physical activity level. The majority (93.5%) of the students who have negative attitude towards the participation of physical activity showed low physical activity level. None (0 percent) of the students who have negative attitude towards physical activity participation demonstrated high physical activity level and a little number (6.5 percent) of the students showed moderate physical activity level. Thus, the students who have positive attitude towards the participation of physical activity showed a high percentage (88.6%) of high physical activity level whereas the students who have negative attitude showed a high percentage (93.5%) of low physical activity level.

Determinants of the Students Physical Activity Participation

This part of the study included the participants' responses to questions concerning psychosocial and environmental influences relating to physical activity and sports participation.



N = 100

Figure 1 Distribution of subjects based on physical activity barriers

Personal barrier descriptions

Lack of energy

There's little energy left for physical activity after a long working day and traveling time from class to residence and food provided to sportsmen lack nutritional value. “It takes a lot of time to travel from residence to lecture for academic work and this takes a lot of my energy.”

Stress and Anxiety

Factors such as academic responsibilities, academic achievement competitions, social pressure (peers, parents, and teachers) and relationships created stress and anxiety in the study participants that influenced their involvement in physical activity.

Lack of Time

The students spent most of their time in front of the computer (studying), due to an increased academic workload. “Due to a busy class schedule, assignments, study and other activities such as family support after college hours, no time for physical activity”. They mentioned that their ability to initiate or sustain some sports or other physical activity was limited by traveling and increased academic workload. “We started doing physical activity for a short period of time in the morning and then stopped. When we are running and walking back, it's 8.00 A.M. We need to go to classes at 8.30 A.M. There is not much time”.

Lack of Sporting Skills

The participants expressed that they joined the Sports Science department without the skill or performance examination for physical activity. Many students highlighted the idea that ‘Before I entered university, I had no experience in daily physical activity. I'm not interested in sports or day-to-day physical activity. I don’t like sport whatsoever as my perceived fun. I only join the sport science department without the skills and interest in physical activity."

Lack of Self-Discipline

Participants' indicate that disciplinary behavior is still one of the major challenges facing university students in the field of sports science. “My personal irregularity limits my participation in daily physical activity. I am not genuine and regular in doing physical activity.”

Lack of Self-Efficacy

Low self-efficacy for some study participants had caused them not to engage in sport and physical activity. When the self-efficacy of a person towards something is weak, there is no chance of succeeding. “When I was young I tried to perform physical activity and sport but I am not good at it. We don't succeed because we're not good at something and you get rid of it. After all, I didn't want to get involved in the sport because I don't have the desire to do so."

Social Barrier Descriptions

Cultural

Cultural barriers have influenced physical activity in certain religions, such as in Islam and particularly in women not being encouraged after a certain age to take part in physical activity and sports. The dressing patterns (styles) for women adherents of the Islamic religion are quite different from the other study participant group. Many females expressed that their perception of physical activity changed with time. “Females are being less active and males being more active and playful’. “Depending on gender exercising varies. Girls become less engaged in physical activity.”

Lack of motivation

Lack of support and motivation from friends and family considered a major obstacle for the study participants to participate in physical activity and exercise. One of the key reasons for the lack of parental support listed by the subjects was that parents prioritize academic achievement over physical activity. If they tried to get up early in the morning for physical activity, the response

from their parents was; “You don't have to get up early in the morning and if you want to wake up, then you'll study better at that time.”

Lack of Parental Modeling

The study participants identified the absence of parental modeling as a significant barrier to physical activity participation. “When our parents do yoga exercise, we may be more inspired to do it with them. When our parents get up for physical activity early in the morning, we can do exercise with them but they aren't”

Gender Typing

Parental understanding of gender often leads them to encourage boys to take part more than girls in physical activity. According to Ethiopian culture, women are responsible to do household chores. A similar experience was shared by female respondents across the entire focus groups. “When I get time; parents tell me to do household work such as cleaning, washing the dish, etc.”

Lack of exercising with others - Peer Pressure

The participants in this particular study mentioned the discouragement they faced from their peer group. Female students are afraid to just go into the area of physical activity. “When I become alone, I am not interested in doing physical activity and going to play area. I won't do physical exercise if I'm alone”.

Verbal Intimidation

Some participants reported that at a time of participation in physical activity, there are disappointments and incidents of being forwarded to women for mistreatment. “I don't like doing physical activity and sport at the sports fields, because there are so many unethical joker boys who threaten female students. Women in student dormitory don't really want to see girls playing and performing physical exercise in the field”.

Lack of Motivation

Support and encouragement to engage in sporting activity during childhood seem to have played an important role in maintaining the students’ physical activity and sports actions into adult life. For example, one participant cited: ‘During my primary and secondary education, I was not much involved in physical activity. That may also be a reason for not being involved right now. It could be the mindset of my education and the world I was in at the time” It is also expressed that ‘we are

sport science professions and an athletic trainer after graduation, we can't tell anyone to take part in physical activity without active participation in physical activity by ourselves"

Environmental barrier descriptions

Safety Matter

Most female participants shared their anxiety and the concern of their parents concerning safety and potential risk of harm if they went to physical activity and exercise. They afraid to go out in the morning and after dark as a barrier to exercising or being more physically active outdoors. One participant mentioned: “If you go out for a walk, parents do not allow us for fear of crime.”

Financial Cost

Most people feel that so as to be healthy or physically active, one must join a gym or health club or participate in an exercise programme. While some people could also be ready to pursue these possibilities, others might not be ready to do so as a result of financial constraints. However, inactivity doesn't caused by an absence of money. Many activities (walking and running) are inexpensive to participate in and don't require the acquisition of costly equipment. The expense concerns were focused on commercial gyms and fitness centers and high membership and class rates. “Gym is there in college premises but we have to pay 500 ETB for membership.”

Internet and Technology

Excessive use of technology such as TV watching, computer use, Facebook, and use of internet has been considered a major perceived environmental barrier among the subjects of the study. Many of the students stated that they spent most of their time on sedentary behaviors on a regular basis that contribute to insufficient physical activity. “We have time but we are more interested in social media like WhatsApp, Facebook, internet and TV.”

Lack of Sport Facilities

Participants mentioned that the availability/accessibility of sporting facilities within the university compound plays a significant role in encouraging students to engage in regular physical activity and decrease sedentary behavior. When the accessibility of sports facilities within the university is restricted, many participants preferred to stay in the residences and spend considerable time in online gaming, watching you tube videos, downloading music, and social networking sites. “We don’t have sport facilities in our surroundings and in college premises.”

CHAPTER FIVE

SUMMARY, FINDINGS, CONCLUSIONS, AND RECOMMENDATIONS

SUMMARY

Physical activity is essential for developing and maintaining one's health and well-being. It is critical for a child's formation of a healthy personality, which is dependent on the opportunities for a child's mental, physical, social, and spiritual development. Regular participation in physical activity will lay the foundation for a healthy and active life. The purpose of this study was to identify the students' level of physical activity, to pinpoint barriers to physical activity involvement and to collect suggestions for increasing physical activity and reducing inactivity in a representative sample of college sport science students.

This study included a total of 266 students (133 males and 133 females) with an average age of 22.88±2.41 years. The study was conducted through a qualitative and quantitative research design. The short form of the IPAQ was used to assess the degree of physical activity among college students. In previous seven days, questionnaires were interpreted as vigorous activity, moderate activity, walking, and sitting. Height, weight, and body mass index (BMI) were reported as anthropometric measurements. An interview (semi-structured) was used for focus group discussions to assess barriers to physical activity involvement among college students. The data collected through IPAQ short form was analyzed using descriptive statistics. For the data gathered through interview (focus group discussions), qualitative content analysis was performed utilizing the thematic inductive method.

FINDINGS

After a thorough analysis of the data collected in relation to the study, the following findings were obtained in several dimensions:

Family Encouragement of the Students towards Physical Activity Participation

- The study reveals that half (50%) of the family do not encourage or allow their students to participate in any form of physical activity and sports. Unfortunately, this is a very pathetic

scenario in terms of encouragement towards physical activity for sports science professionals. On the basis of observation, it is assumed that this is mainly due to the exaggerated importance given to academic achievement and the false notion that their physical activities and sports will deteriorate students' studies. Lack of knowledge about the physical and psychological benefits of physical activities and sports prevents parents from encouraging their students to participate in physical activities and sports.

Opinion of Students about Physical Activities

- It has emerged from the study that more than half (57%) of the students are of the opinion that regular participation in physical activities are optional for sport science professionals and only 34% of them feel that it is compulsory. The ground reality is that sports science students did not consider participation in physical activity is mandatory in the colleges of Oromia state. Since only about one-third of the students interviewed feel physical activity is compulsory for sports science students, only those students actually participate in regular physical activity actively as compared to other students who participate only occasionally.
- The study reveals that the majority (94%) of the respondents do not have any experience with physical activity and sport before joining the sports science department. This indicates that students recruited and joined the sports science department without sporting ability, skills and knowledge of physical activity and sport.
- It is observed from the study that the majority (43.6%) of the respondents have low self-efficacy for physical activity and only 27.1% of the respondents do have high self-efficacy for physical activity. Thus, self-efficacy plays a great role in the students' participation in physical activity.

Opinion of Students about Physical Activity and Sports Facilities

- It is found that the majority (95%) of the students negatively state that there is no physical activity measuring instruments within their department that motivate them to engage in physical activity and aid to measure their fitness level.
- It has emerged from the study that the rate of outdoor physical activity and sports facilities such as playing surfaces, drainage facilities, accessibility to the public, facilities for spectators, changing rooms and showers, first aid facilities, canteen facilities, and provision for safety

standard is rated as below average. All of these affect the participation of students in physical activity and deteriorate the development of sports within the college.

Opinion of the students about Sport Science Director

- It has emerged from the study that in all the Government colleges in Oromia State there is only one Sport Science Director. The majority (89%) of the students are dissatisfied with the number of sports science directors in the colleges probably because the one sports science director, who is employed more from the necessity of satisfying the mandatory requirement of a sports science director than to satisfy the physical activity, sports and fitness needs of the students, is not able to perform his/her duties to the students' satisfaction.
- It is evident from the study that 83.3% of the respondents have completed post-graduation (M.Sc) in Sports Science – which is a mandatory requirement to work as sports science directors at the college level. Only 16.7% completed their doctoral degree. A look into the professional qualifications gives the picture regarding the seriousness of the sports science directors in achieving higher qualifications. A professional reaching out for higher degrees speaks volumes about the professionalism and enthusiasm to work harder towards achieving the institutional objectives in his or her field of choice.
- It is observed from the study that all (100%) of the directors categorically state that they do not seek the help of external physical activity/fitness coaches to train the sports science students in their respective colleges and none of them indeed acknowledged that they would bring the external expertise to guide/coach the students in various exercises and sports.
- It is evident from the study that all (100 %) of the sports science directors acknowledge that the selection of the students would be exclusively based on college entrance point – in which the least scorers are forced to assign to the sports science department which is not at all recommended for recruiting the students. Therefore, it is very important to sport science students to be selected based on their individual interests as well as skill and fitness test so that they can be effective in the field of sports science.
- Sports facilities and infrastructures play an important role in attracting students to physical activity. The study reveals that the sport science directors (83%) reflected their opinion that the existing physical activity and sports facilities provided by the management is inadequate to meet the requirement of the students.

- It is observed that 83% of the sports science director acknowledged that there is a separate budget provision by the college management exclusively for sport science but the fund given to conduct different physical activity and sports event is insufficient. Therefore, it is difficult for sports science (physical education) directors to allocate appropriate funds for different activities. Insufficient fund hampers physical activity and sports development and discourages students. Fund insufficiency makes the directors search for any local sponsors to organize physical activity and sports programs in order to motivate students.

Students' Physical Activity Level based on study variables

- It is observed from the study that male students showed a higher percentage (54.1%) of high physical activity levels as compared to female students (9.0%). However, female students displayed a high percentage (51.1%) of low levels of physical activity as compared to males (11.3%). The prevalence of physical inactivity was higher among females than males. Thus, male students are most active compared to female students.
- This study confirmed that participation in physical activity is positively associated with the students' academic achievement. It is found that the study participants found in the great distinction (≥3.6 GPA) academic achievement range category showed a high percentage (73.2%) of high physical activity level whereas the study participants found in the fair academic achievement range category (2.0 – 2.4 GPA) showed a high percentage (78.8%) of low physical activity level. Thus, physically active students performed better academically than those who were non-active. The reality is that frequent physical activity involvement led to great academic achievement because regular physical activity keeps a person intellectually attentive.
- In terms of body mass index, it is observed from the study that the study participants found in the underweight, overweight and obese body mass index category showed a high percentage of low physical activity levels compared to the normal body mass index students. It is only normal body mass index category students that showed a high percentage of high physical activity levels. Thus, body mass index affects or matters the participation of the students in physical activity.
- It is found that the majority (88.6%) of the students who have a positive attitude towards participation in physical activity showed a high percentage of high physical activity levels

whereas the students who have a negative attitude towards participation in physical activity showed a high percentage (93.5%) of low physical activity level. Hence, attitude affects the participation of students in physical activity. The study participants were categorized into 3 ranges of age 18 – 21 years, 22 – 25 years, and 26 – 30 years in order to analyze the physical activity level of study participants. The study reveals that the study participants found in the age range of 22 – 25 showed a high percentage (44.9%) of high physical activity levels whereas the study participants found in the age range of 18 – 21 showed a high percentage (53.9%) of low physical activity level.

Patterns of Sedentary Behaviors

- It is observed from the study that 50.4% percent of the male students spent much of their sedentary time in technology-based entertainment (computer/internet) whereas 54.1% of the female students spent little sedentary time in technology-based entertainment, such as computer/internet. This result confirmed that male sports science students spent much of their sedentary time in technology-based entertainment than females.
- It is found that the majority of the students (male 50% and female 42%) don't have any sedentary time to spend engaging in playing video games. A very small number of the students (male 10.5% and female 16.5%) spent more than seven hours per week appealing in playing video games.
- It is evident from the result of the study that the majority of sports science college students (64.7%) spent a substantial amount of their sedentary time which is more than seven hours per week doing homework in which male students engage in agricultural work like farming and female students engaging in housework activities like cooking, washing, etc.
- Next to doing homework, it is found that the majority of college sports science students (60%) spent a substantial amount of their sedentary time which is more than seven hours per week studying for academic and other purposes.
- The study reveals that the majority (46.6%) of the male students entirely have no sedentary time to spend sitting and talking with friends (socialization). More than one-third (36.1%) of female students spent a substantial amount of time, which is; more than seven hours per week for socialization (sitting and talking with their school friends). Thus, female college sports

science students (36.1%) spent much of their sedentary time more than seven hours per week socializing with their friends as compared to the male students (5.3%).

- ❖ It is evident from the study that more than 90% of male sports science students had no or little time to spend talking on the telephone with their friends, families, and relatives. More than 60% of the female respondents entirely don't have or little time to spend talking on the telephone with their school friends, families, and relatives.
- ❖ It is observed from the study that nearly 50% of the male respondents entirely don't have or little time to spend watching TV. Similarly, 46% of the female respondents spent a high (14 – 27.9 hour/week) or very high (≥28 hour/week) amount of time watching TV. Thus, female students spent a substantial amount of time, which is, more than twenty-eight hours per week watching television than males.

Patterns of Physical Activity

- ❖ The result of the study revealed that the majority of male respondents (60.1%) reported a high amount of physical activity (> 300 minutes/week of moderate activity or > 120 minutes/week of vigorous activity). 47.4% of the female respondents reported a high amount of physical activity (> 300 minutes/week of moderate activity or > 120 minutes/week of vigorous activity). Thus, male students are most active compared to female students.

Determinants of Physical Activity Participation

- ❖ It had been shown throughout the focus group discussions that participants were conscious of the need to engage in physical activity and exercise, but they were unable to do the physical activity because of several barriers to physical activity. These barriers include: personal (lack of energy, stress and anxiety, physical ailments, lack of enjoyment of the physical activity, time constraints, lack of self-discipline, lack of self-efficacy, etc.), social (lack of parental support and modeling, gender typing, lack of exercising with others, lack of motivation, etc.) and environmental (physical environment, lack of sports facilities, financial cost, weather conditions, internet, and technology).

CONCLUSIONS

This qualitative and quantitative study analysis produced many interesting results. It identified a number of important correlates of physical activity that can be targeted by intervention programs

for sports science college students. The focus group discussions identified that participants were conscious of the need to engage in physical activity and exercise, but they were unable to do the physical activity because of several psychosocial and environmental factors such as lack of energy, stress and anxiety, physical ailments, lack of enjoyment of the physical activity, time constraints, lack of self-discipline, lack of self-efficacy, lack of parental support and modeling, gender typing, lack of exercising with others, lack of motivation, physical environment, lack of sports facilities, financial cost, weather conditions, internet and technology and much more were positively associated with physical activity. The findings revealed that the most common reasons for not participating in physical activity were a lack of time due to a busy/hectic lesson schedule and prioritizing academic achievement over physical activity. When it comes to sedentary behavior, the results showed that the majority of sports science college students (65%) spent substantial amount of time which is more than seven hours per week doing homework. More than 50% of them spent little or no time in the use of the computer, playing video games, reading, sitting and talking, telephone, and watching television. In terms of physical activity participation, 54% of the students reported a high amount of physical activity (> 300 minutes/week of moderate activity or > 120 minutes/week of vigorous activity). Only 20% of them reported low or no physical activity.

This study also confirmed that participation in physical activity positively associated with the students' academic achievement. The study participants found in the great distinction (≥3.6 GPA) academic achievement range category showed a high percentage (73.2%) of high physical activity level whereas the study participants found in the fair academic achievement range category (2.0 – 2.4 GPA) showed a high percentage (78.8%) of low physical activity level. Thus, physically active students performed better academically than those who were non active. The reality is that frequent physical activity involvement led to great academic achievement because regular physical activity keeps a person mentally attentive.

In terms of body mass index, the study participants found in the underweight, overweight and obese body mass index category showed a high percentage of low physical activity levels. It is only normal body mass index category students that showed a high percentage of high physical activity levels. The findings showed that the students who have a positive attitude toward participation in physical activity showed a high percentage (88.6%) of high physical activity levels whereas the students who have a negative attitude towards the participation of physical activity

showed a high percentage (93.5%) of low physical activity level. With regard to gender, the findings of the present study indicated that male students showed a higher percentage (54.1%) of high physical activity levels and female students displayed a high percentage (51.1%) of low levels of physical activity. Hence, male students are most active compared to female students.

Moreover, the findings of the present study indicated that sports science students in Ethiopia generally join the sports science department without first passing a physical fitness and ability test. The students only join the program without their performance in practical activities. Hence, without the knowledge, fitness, ability, and skill to do physical activity, one cannot demonstrate and participate in physical activity and leisure time during the practical activity session.

Furthermore, this study also identified that physical activity and sports professionals in higher education have not been able to effectively increase students' physical activity behaviors. The sports science lecturers don’t pay attention to the practical aspect of teaching sports science rather they give much emphasis to the theoretical aspects of it. Interventions to promote students' physical activity by sports science lecturers are still at an early stage and have only produced low effects.

Generally, the findings of the present study provide key implications for other researchers working in this field, considered a first step toward the development of tailored and effective intervention programs aiming to improve the physical activity level of sports science college youths and add to the limited body of evidence regarding sports science college students physical activity level and barriers to physical activity participation. As a result, physical activity and sports authorities, health professionals, and researchers can use this information to design and implement interventions, strategies, and policies to promote the sports science college students’ participation in physical activity. Study results can also help students to deal with those barriers and can help instill the habit of daily physical activity in later adult years. Such knowledge can also be used by health practitioners and researchers to plan and incorporate programs, approaches, and policies to encourage engagement in physical activity. Thus, the researcher's conclusion reveals that physical activity levels among sports science college students are satisfactory, despite the fact that female students have a higher percentage of low physical activity levels.

RECOMMENDATIONS

The following recommendations are given as a result of the study's findings.

- Students' incapability to participate in physical activity and sports is primarily due to a lack of infrastructure. It is critical to provide adequate infrastructure and sports facilities within the college premises so that students do not have to travel to distant locations to receive these services. The government should take the lead/initiative in building and establishing physical activity and sports facilities, as well as suitable infrastructure and coaches, in every college to encourage students' engagement and inspect them frequently to ensure that they are being utilized properly.
- Teaching self-management skills and fostering physical activity and exercise enjoyment in health promotion programs is important for sports science college students. Environmental and social changes allow community members to raise their level of physical fitness and more readily adopt active lifestyles.
- In order to increase self-efficacy perceptions in sports Science College adolescents, interventions should provide enjoyable, developmentally appropriate physical activity options that promote mastery, as well as policies that increase parental support and awareness of community physical activity programs.
- To increase physical activity engagement among sport science college students, multifaceted interventions involving barriers at many socio-ecological levels of influence are required. Interventions should target both behavioral and environmental changes. Sensitizing students, improving physical activity training and sports competition in college, providing cheaper and more flexible facilities, and including physical activity into class schedule are all part of it.
- At the college level, a regular physical activity plan is required, and participation motivation along with studies will considerably improve the physical activity level and overall performance of sport science students.
- Physical activity programs in schools and communities are an excellent way to increase physical activity among students, and stakeholders should promote better access to these programs. Community organizations should provide a variety of developmentally appropriate physical activities that are targeted to the needs of teenagers in order to implement such a program. Local recreational community centers should work closely with schools to educate

parents and students about community-based sports and physical activity programs in order to raise awareness of these programs.

- Stakeholders can enable even more students to participate in regular physical activity and benefit from the program by maintaining the physical activity and sports program during semester breaks and harmonizing the commencement of physical activity and sports sessions with the start of class schedules. This would be a critical step in increasing physical activity engagement among this target population, and, as a result, making a significant contribution to their current and future health.
- There is a need for university administration to organize various intramural sport competitions, yoga practice, and bicycle use for active transportation, traditional sporting events, and minor games in order to encourage students to engage in regular physical activity.
- With regard to sedentary behavior, the study participants suggested that "by making sporting activities easier to access/use and more fun, by boosting perceived enjoyment of physical activity and sport, students will spend less time on the couch, internet, Facebook, computer use, watching movies and television."
- The study participants suggested that sports science lecturers pay more attention to physical activity and sports training, and that they organize different sports events for sport science bachelor's students on a weekly basis to encourage them to engage in regular physical activity.
- Future studies should examine the influence of policy and the built environment on physical activity behavior in sport Science College students, in addition to the influences examined in this study, and, where possible, use objective measures of physical activity to further improve our understanding of physical activity behavior in Sport Science students.

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